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CHILD DEVELOPMENT



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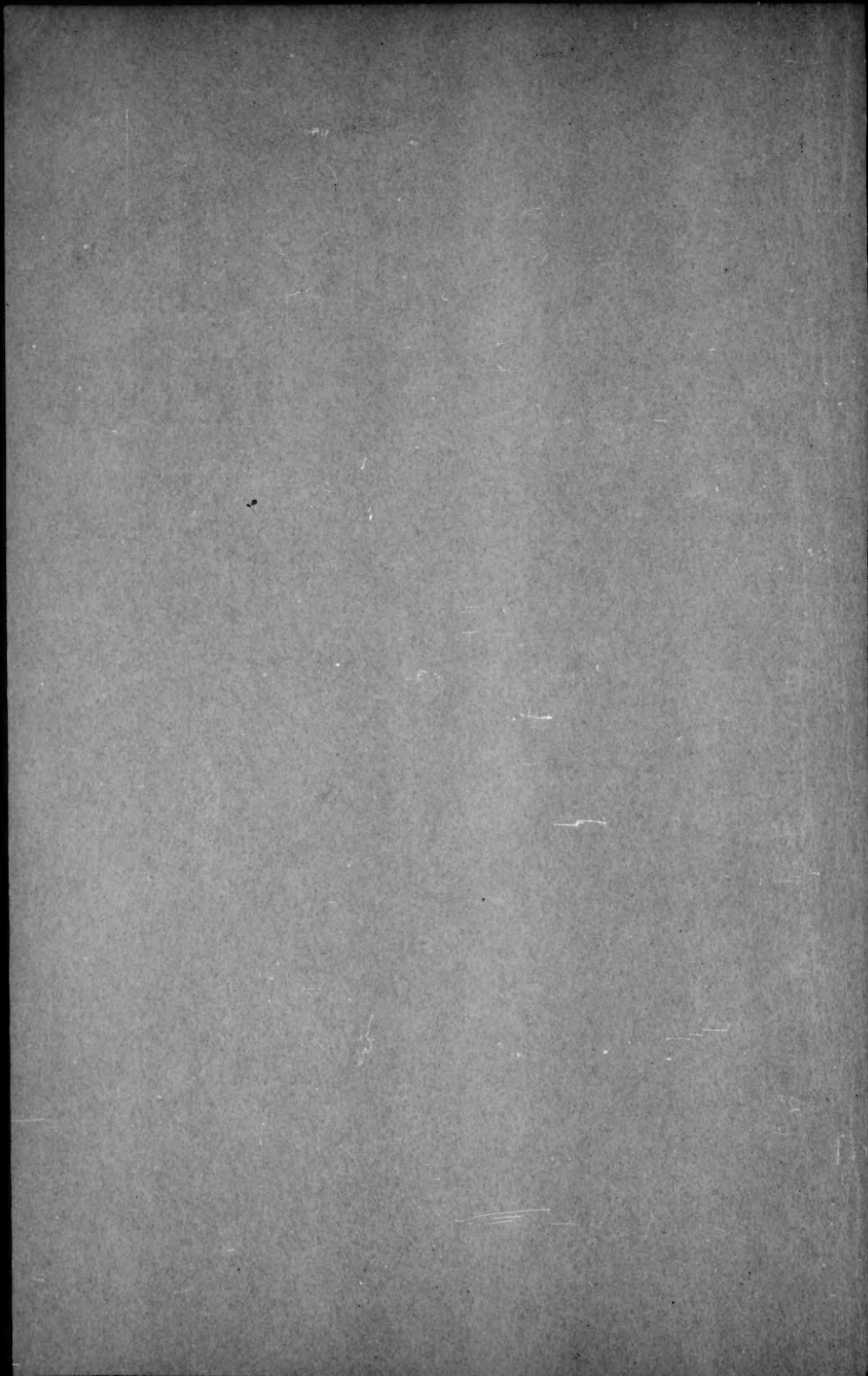
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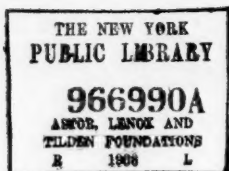
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THE RELATION OF THE FOSTER HOME ENVIRONMENT
TO THE MENTAL DEVELOPMENT OF CHILDREN
PLACED IN INFANCY

HAROLD M. SKEELS¹

The mental development of children placed in foster homes is being studied cooperatively by the Iowa Child Welfare Research Station and the Bureau of Child Welfare. The present report is the first unit of a long-time study. As time progresses, children from infancy to six years of age at time of placement in foster homes will be included in order to determine changes in mental growth with changes in the environment. The unit now being reported includes only children who were under six months of age when placed in foster homes. The state program requires that a child be in the foster home at least twelve months before application for adoption can be made. The group includes all children for whom application for adoption was made during the fiscal year from February 1, 1934 to February 1, 1935 who had been placed before they were six months of age, a total of seventy-three children. These children have been in the foster homes from one to five years. The mean chronological age of this group at time of placement was 2.5 months. The children have therefore experienced essentially only the environment of the foster home.

All children have been given at least one intelligence test just prior to adoption. The Kuhlmann and Stanford Revisions of the Binet have been used as the standard measures of intelligence. Children under three and one-half years of age have received the Kuhlmann and those over that age the Stanford. The mean age of the group at the time intelligence tests were given was 24.4 months. Histories of both true and foster parents, including educational attainment, occupational status, and economic security, have been evaluated. In addition to these factors, Stanford-Binet intelligence tests have been obtained on thirty-nine of the true mothers.

As shown in Table 1 the average educational attainment of true fathers was 10.2; the figure represents the grade completed. The average educational

Table 1

Mean and Standard Deviation Comparisons of Education
and Occupational Status of True and Foster Parents

Factors	True Parents			Foster Parents		
	Num- ber	Mean	Stand- ard De- viation	Num- ber	Mean	Stand- ard De- viation
Occupational status of fathers	54	5.8	1.34	73	3.5	1.37
Education of fathers*	42	10.2	2.25	71	11.5	2.87
Education of mothers*	69	9.4	2.15	71	11.7	2.67
Mid-Parent education*	42	9.8	1.90	70	11.6	2.61

*School grade completed

attainment of the true mothers was 9.4. The average mid-parent grade attainment was 9.8. Thirty-three per cent of the true fathers and 46 per cent of the

¹ From the Iowa Child Welfare Research Station, University of Iowa, Iowa City, Iowa. The writer wishes to express his appreciation to Dr. Mae Habenicht, Superintendent of the Bureau of Child Welfare, for her helpful suggestions and for her approval and encouragement of this study of foster children; to the Iowa Board of Control of State Institutions which has cooperated in making possible research studies of state wards; to Mr. H. A. Mitchell, Superintendent of the Iowa Soldiers' Orphans' Home from which the children reported in this study were placed; to Miss Marie Skodak, assistant psychologist of the Board of Control, who made a number of the examinations and who assisted in setting up this study; and to Dr. George D. Stoddard, Director of the Iowa Child Welfare Research Station, who made the study possible.

true mothers went no further than the eighth grade in school. A higher level of educational attainment is represented by the foster parents. The average grade attainment for foster fathers was 11.5 and for foster mothers, 11.7 with 11.6 being the average mid-parent grade level. None of the foster parents had had less than an eighth grade education. Fifty-five per cent of the foster fathers and 62 per cent of the foster mothers had at least graduated from high school.

Comparisons of occupational status for true and foster parents have been made on the seven-point classification of employed males used in the Census of the United States, Volume 4, 1920 (Reported by Goodenough¹). On this scale, Group I represents the professional occupations; Group II semiprofessional and managerial; Group III clerical, skilled trades, and retail business; Group IV farmers; Group V semiskilled occupations, minor clerical positions, and minor business; Group VI slightly skilled trades and other occupations requiring little training or ability; and Group VII day-laborers of all classes. On a basis of such comparisons, true fathers have a mean occupational level of 5.8 (Table 1). Forty-six per cent of the true fathers classify in the lowest occupational level, that of day-laborer; 86 per cent of the true fathers class in the lowest three occupational groups. The mean occupational classification of foster fathers is 3.5 and 74 per cent of the foster fathers class in the four highest levels. Over and above these contrasts in occupational status of true fathers and foster fathers, there is an even more marked differentiation in that within each occupational level the foster fathers represent the economically secure individuals, while within the same occupational levels the true fathers represent the economically insecure individuals.

The mean IQ for the thirty-nine true mothers on whom intelligence tests were available was 83.8. Of this group of thirty-nine mothers, fifteen had IQ's below 80 and were of borderline and feeble-minded levels of intelligence, the mean IQ being 70.7.

It will be seen from these comparisons that the level of true parents is very markedly below the level of foster parents. It may be stated parenthetically that at the time placements were made of the seventy-three children included in this study, the major basis for selection for placement was a clear medical record and physical soundness. Furthermore, selective placement was found not to be operative, that is, the child from a feeble-minded mother was as apt to be placed in a foster home of superior status as in a foster home of the lower occupational levels. Conversely, children with superior inheritance were placed in the lowest occupational levels of foster homes as well as the highest. Selective placement is therefore ruled out as a causal factor. It may be further stated that this inadequate procedure of matching children to homes no longer exists. A careful study of case histories is made by the Superintendent of the Bureau of Child Welfare, the superintendent of the orphanage, and a member of the Department of Psychology, before an assignment is made to a foster home. In this way the present policy is very definitely to match the abilities of the child with the opportunities of the home. However, the earlier method has furnished an invaluable source of data for measuring changes in mental growth in relation to environmental stimulation.

Results of psychological examinations made on these children in foster homes show the mean IQ of the group to be 115.3. This is definitely above average. Of the seventy-three children, twenty-six of them classed as of very superior intelligence; twenty-two of superior intelligence; twenty-four of normal or average intelligence; one at the dull-normal level; none at the borderline level; and none at the feeble-minded level of intelligence. Of the seventy-three children, 98.6 per cent class as normal or above. Such findings are significantly higher

¹ Goodenough, Florence L. and Anderson, John E.: *Experimental child study*. New York, Century, 1931, pp. xii, 546. (Appendix A, pp. 501-512).

than the expectancy from an evaluation of the histories of true parents which show them to be of the lower social, economic, and educational levels in society. A correlation of only $.09 \pm .11$ was obtained between the intelligence of children and true mothers (Table 2).

Table 2
Comparative Correlations between Child's IQ and
Education of True and Foster Parents

Factors	True Parents		Foster Parents	
	Num- ber	Correlation	Num- ber	Correlation
Mid-Parent education	42	$+.29 \pm .10$	70	$-.04 \pm .08$
Education of father	42	$+.23 \pm .10$	72	$+.01 \pm .08$
Education of mother	69	$+.13 \pm .06$	71	$-.10 \pm .08$
Mother's IQ	39	$+.09 \pm .11$		

The highest correlation was obtained between the intelligence of children and the mid-parent educational level of true parents which was only $.29 \pm .10$. Although correlation techniques show little relationship with education or occupational status of either true or foster parents, the fact yet remains that the level of intelligence of these children is higher than would be expected for children in their own homes whose parents were of comparable levels.

In making further comparisons of children's IQ's as relating to true parents (Table 3), a mean IQ of 115.5 was obtained for all children whose true mothers' IQ's fell at the borderline or feeble-minded level (below 80).

Table 3
Comparisons of Children's IQ's with Education, Occupa-
tional Status, and Intelligence of True Parents

Factors Relating to True Parents	Chil- dren	IQ	
		Mean	Stand- ard De- viation
Fathers of occupational levels IV, V, VI, and VII	48	114.9	12.5
Fathers of occupational levels VI and VII inclusive	33	115.4	12.9
Fathers of occupational levels VI and VII and mothers with grade school education or lower.	17	111.2	11.9
IQ's of mothers (Mean IQ = 83.8)	39	116.7	13.0
Mothers with IQ's below 80 (Mean IQ = 70.7)	15	115.5	12.3

The mean IQ of this group of children from the mothers of lower IQ's was only one point lower than that of the entire group of children. Children whose true fathers classed in the two lowest occupational groups, showed a mean IQ within one point of the total group. Taking the children with low inheritance on both

sides, that is, with fathers of occupational groups VI and VII and with mothers of eighth grade education or less, the mean IQ was 111.2, or only 4.5 points lower than for the entire group.

Comparisons of children's intelligence with the occupational levels of foster fathers show an absence of relationship for children under two years of age. As age increases there appears to be a tendency for positive relationship (Table 4).

Table 4

Means and Standard Deviations of Children's IQ's in
Relation to Occupational Levels of Foster Fathers

Occupational Levels of Foster Fathers	Children			
	Num- ber	Mean Age, Months	IQ	
			Mean	Stand- ard De- viation
Groups I, II, III combined (all children)	39	26.4	115.7	11.4
Groups IV, V, VI, and VII combined (all children)	34	22.2	114.9	13.2
Groups I, II, III combined (children below twenty- four months)	24	16.3	117.1	11.7
Groups IV, V, VI, VII com- bined (children below twenty-four months)	26	16.9	118.3	11.5
Groups I, II, III combined (children above twenty- four months)	15	42.5	113.5	10.2
Groups IV, V, VI, VII (children above twenty- four months)	8	38.4	103.7	12.3
Groups I, II, III combined (children above thirty- six months)	9	52.0	112.1	12.5
Groups IV, V, VI, VII com- bined (children above thirty-six months)	4	48.8	98.3	7.3

Combining children from the higher occupational levels, including groups I, II, and III, and comparing them with those of the lower occupational levels, groups IV, V, VI, and VII, for children under twenty-four months (chronological ages between groups being comparable) gave mean IQ's of 117.1 and 118.3 respectively. For children over twenty-four months a difference of ten points in mean IQ was obtained in favor of the higher occupational levels. When only those children who were over thirty-six months at the time of examination were compared, the mean IQ for the higher occupational levels was 112.1 as against 98.3 for the lower, showing a difference of 13.8 in favor of the higher occupational levels. The numbers at these higher ages are so few as to make it impossible to draw any conclusions as to an increased relationship between foster-paternal occupational levels and differences in intelligence with increase in the age of the child. However, this tendency may be worthy of further consideration.

In conclusion, findings to date seem to indicate the following: (1) the mean level of intelligence of these children is higher than would be expected for children coming from the educational, socio-economic, and occupational level of the true parents; (2) no relationship appeared between the intelligence of true mothers and that of the children; (3) judging from the few cases available at the older preschool ages, a relationship between children's IQ's and foster fathers' occupational status seems to be present as the age of the child increases.

AN EXPERIMENTAL INVESTIGATION OF A METHOD OF
OVERCOMING CHILDREN'S FEARS

FRANCES B. HOLMES¹

This study was planned with the aim of trying our experimentally a method of overcoming fear in young children¹. An examination of actual research on this subject and of the books on child guidance which deal with the elimination of children's fears indicated a need for further experimentation under controlled conditions, as well as data from other sources. A brief summary of this literature follows.

Few studies in the elimination of children's fears under controlled laboratory conditions have been attempted. The study which is, perhaps, best known is that of Jones (12). Her subjects were seventy children three months to seven years of age living in an institution for the temporary care of children. They were tested for the existence of fears of the dark, being left alone, noises, masks, rabbits, frogs, rats, etc. The author reports that the children showing fear in these situations were selected as subjects, and various methods of elimination were tried. The various methods reported, however, appeared to be tried only on those children who showed fear of animals. These methods are briefly summarized below.

1. Disuse. This method is reported to have been employed with three children to whom the feared object was presented after intervals of two weeks to three months. The fear was still apparent.

2. Verbal Appeal. This method was used with one child of five years. It included ten minutes of conversation daily about the feared object, connecting it verbally with pleasant experiences, looking at a picture book of rabbits, and playing with toy rabbits. The live rabbit was again presented at the end of the week and the fear was still apparent.

3. Negative Adaptation. The non-verbal repetition of the feared situation. This method was used successfully with one child in overcoming fear of a rat. The child did not show a distinct positive reaction to the rat. The author makes the point that this method is apt to cause a simple indifference rather than useful acceptance. It also might result in increased fear.

4. Repression. The child is induced to cover up overt expressions of fear because of ridicule, teasing by other children or scolding by adults. One such case is described. This obviously results in the child hiding the fear rather than overcoming it.

5. Distraction. The offering of a substitute activity, such as talking to the child, while he approaches the feared object. Two such cases are described as successfully handled in this way. The author, however, remarks that distraction soothes a fear response but may fail to achieve a permanent reduction of the fear.

6. Direct Conditioning. Under this heading was included all specific attempts to associate with the feared object a definite stimulus capable of arousing a positive reaction. The author states that, "The hunger motive appears to be the most effective for use in this connection." This method is described in detail as it was applied to one child (11). While the child was eating, the feared rabbit was slowly brought nearer to the table, then placed upon the table, and finally it was brought close enough to be touched. This method was successful, but the author emphasizes that it requires careful handling.

¹ This study was conducted at the Child Development Institute, Teachers College, Columbia University during 1935. The author is indebted to Prof. Arthur T. Jersild for valuable advice and is grateful to Miss Kathern McKinnon, head teacher of the Three-Year-Old Group of the Lincoln School Nursery School, for her helpful cooperation. The author also wishes to express her appreciation to Prof. Lois Hayden Meek for providing the facilities which made this study possible.

7. Social Imitation. The two subjects whose behavior was described were allowed to share in the social activity of a group of children who were fearless when the feared object was introduced. This was successful in overcoming their fear. The author feels that this method is useful, although precautions are necessary as it is possible to induce fear in the previously fearless subject in this way. Jones repeats that the last two methods described were the only ones which met with unqualified success.

In discussing the elimination of fear responses Watson summarizes the work of Jones reported above. He concludes by saying, "The most successful method so far discovered for use in removing fears is the method of unconditioning or reconditioning" (16). He states that the use of this method in the case he described had a serious drawback, because he did not have control over all the meals of the child "Probably if the child had been stroked, petted, and rocked (sexual stimulation, thus leading to restraining of viscera) just as the feared object was presented, unconditioning might have taken place much more rapidly" (16).

It seems to this writer that the phrase "just as the feared object was presented" gives the clue to the element in the method of direct unconditioning, using either food or, as Watson suggests, sexual stimulation as the positive stimulus, which is its main limitation. For this method, as its description and actual use has shown, can only be used in overcoming fear of an object or animal which can be presented to the child while he remains passive, rather than learning actively to approach and enter the fear situation himself.

Watson at a later time (17) again stresses this method. When suggesting to parents a way of dealing with fear he says, "When all other methods fail (and he implies that they will fail) try this method Work it only once per day at noon time, when the child is hungry. Just as the child sees its food let someone show the rabbit as far away as possible." He then continues to describe the well-known re-conditioning technique. But one might question how this suggestion could help the parent whose child is not conveniently afraid of the rabbit, but is terrified when asked to enter the water. All children's fears are not of objects or animals by any means. Fears of climbing or walking on high places, fears of entering dark rooms, crossing streets, meeting strangers, entering the water, as well as the more intangible fears of imaginary dangers could hardly be treated in this way. It would be difficult from a practical standpoint alone to have a child eating (and both Jones and Watson emphasize the food as the successful positive stimulus) while walking along a high place or entering a dark room. It is also difficult to see how the concrete pleasant stimulus of eating could be associated with an imaginary bogey. Both Watson and Jones selected from the various fears discovered in their subjects only those of animals to use in their experiments, which could be presented to the child while he was undergoing the pleasant experience of eating. This does not take adequate account of fears wherein the child must act himself and enter the fear situation, such as entering a dark room alone, approaching and speaking to a stranger, etc. In overcoming the many fears of this type the child cannot be simply a passive creature. He needs to cooperate actively as he must learn to make positive movements toward the feared situation, rather than just sit still and learn to tolerate the feared object as it is brought toward him.

We would not consider that a child had overcome a fear of heights or a loss of support if he learned simply to sit inactive on a high ledge. He would have to walk along the ledge without hesitation or objection, and climb to high places with enjoyment. We would not agree that a child had no fear of the dark if he only slept in a dark room at night after he had been put to bed by his parents who turned out the light. Many adults who have kept their childhood fear of the dark, complicated by fears of imaginary dangers in the dark, uneasiness when walking on dark streets at night, and hesitancy when entering a dark house alone, are quite willing to sleep in a dark room.

Watson (17) offers unconditioning as the only means of eliminating this fear also. He says, "Start unconditioning at once. Put the child to bed at its usual time. Leave a faint light in the hall and leave the door open; Then every night after putting the child to bed close the door a little more and dim the light still more. Three or four nights usually suffice." This description makes this method seem both simple and sure. That it has been tried without success is indicated by parents' report of methods they used in attempting to overcome fear (9). It also ignores the factor of imaginary creatures, bogies, etc., feared when in the dark. This method also attempts to cope with the fear of the dark only as expressed by unwillingness to sleep in the dark. But a child with no fear of the dark should be able to enter a very dark room alone to search for a toy or walk all the way into the room and find the light switch without hesitation or uneasiness. In other words, the child must in many cases, actually learn new types of behavior, new skills, new ways of coping with the fear situation.

A child who is afraid of being on high places, if he is overcoming his fear in the completest sense, is acquiring new skills and abilities. He is learning how to maintain his balance while walking, how to rise from sitting to a kneeling, and from a kneeling to a standing position without falling, etc. These may not be necessarily entirely new, as he may already do these things while two feet from the ground, but he has to learn to do these at four or six or ten feet from the ground, which means making new adjustments. It is hard to see how fear could be thus overcome while the child is the passive object of direct unconditioning technique as it is usually described.

A summary of a number of methods that have been used in preventing and overcoming fears has been presented by Jersild (10). The data on which this discussion is based consisted of parents' reports of the fears they observed in their children, material gathered in interviews with parents in which they reported methods they had used in overcoming fear, and adults' reports of their childhood fears and ways in which those fears had been overcome. The most frequent factors reported in attempting to prevent the occurrence of fear were precautions taken to avoid contact with obvious fear stimuli, forewarning, anticipating the effects of maturation, and the promotion of skills. The outstanding elements in overcoming fears which had already developed were the factors within the child himself, including growth and experience, habituation, and the child's efforts to develop counteracting skills. Other contributing methods used were: one, aiding the child to escape when the situation is quite beyond him; two, efforts to explain, reassure, and promote understanding, and three, efforts to promote actual contacts and active coping with the fear stimulus. This third method was the most successful.

The many books on child guidance which discuss the problem of overcoming children's fears show a need for more objective data as the basis for suggestions made to parents of methods to use in overcoming fear. A number of these authors, including Gesell (7), Blatz and Bott (5), Langdon (14), Faegre and Anderson (6), and Thom (15), offer a fairly wide variety of practical suggestions for avoiding or preventing the occurrence of fear. But the suggestions are more meagre in dealing with the elimination of fears once they are established.

Many books limit themselves to one or two methods. The only two methods which are recommended on the basis of actual successful laboratory experimentation are those of social imitation and direct unconditioning. The authors who lay most of their emphasis on this method of direct unconditioning are Watson, Arlitt (2), Blatz and Bott, Faegre and Anderson.

The method applied by Jones and called "social imitation" is mentioned by several authors. Some of the statements as to its value, however, are contradictory. Watson (17) says "You can try letting other children play with the rabbit in front of the scared child. This does not work either."

While Anderson (1) states that "probably the most effective means of breaking up fear reactions, by and large, and over a period of time, is through the social group in which the child moves."

Several authors appear to over-simplify the ease with which fears can be removed. Thom (15) says "The objective fears are the most common, or at least, they are recognized most frequently by parents. Since it is usually not difficult to determine their origin these fears can soon be overcome." Gruenberg (8) makes the statement that "Many children are frightened by the touch of fur, or even of velvet; but this lasts only a short time and they soon learn to like the feel of soft, furry things, even of dogs and cats." This statement does not offer much aid to the parent whose child, over a period of two or three years, has crossed to the other side of the street to avoid passing a dog. That fears of animals often persist into adulthood is indicated in a study by Jersild and Holmes (10) which included adults' reports of their childhood fears as well as those they still had. Of these adults a large number mentioned that fear of animals, beginning in childhood, continued into their adult years. Arlitt (3) on the other hand, says that "All of them (fears) can be adjusted in a large measure by the use of the right method of conditioning." This statement probably over-emphasizes the ease of application and the degree of success insured by this method.

Others who suggest to parents ways of eliminating fear give what is probably an unwarranted amount of emphasis to the success of explanation or "reasoning" with the child. It has already been mentioned that Jones' method of "verbal appeal", which is very similar, met with no success. Thom (15), however, in discussing what he calls "subjective" or imaginary fears, says "Fear should be dispelled at the earliest possible moment by reassurance, which parents can give by reasoning with the child, and by giving him evidence that his imagination has played a trick on him." And later, he continues "Simple explanations often take away all unpleasant and fearful emotional reaction to any situation or experience through which the child is passing." Evidence presented in a study (9) mentioned earlier, of methods parents actually used in attempting to overcome fear indicates that reassurance and explanation, when used alone, met with but little success.

Many discussions of overcoming fear cite specific cases of a certain fear which has been overcome in some particular manner. For instance, in several books instances are cited of a child who overcame fear of dogs when his parents gave him a puppy to play with. This, however, cannot be applied by the many parents who, for various reasons, are not able to supply a puppy for their children. When one specific circumstance is mentioned in this way, it cannot be of much practical value to parents who are unable to reproduce the specific circumstances described. Also a method which worked in the one case cited cannot be expected to work with every other child.

There is another type of guidance material which might be briefly mentioned here, that based on the psycho-analytical approach to the problems of young children. Fear shown by young children is there interpreted as an expression of deep-seated conflict. The fear overtly expressed by the child is caused by a hidden fear, conflict, sense of guilt, etc. It is this repressed, hidden fear or conflict which must therefore be dispelled before the overt fear will be overcome. Melanie Klein (13) cites a case of a child of four years who had a fear of being left alone or abandoned by her mother "as a result of her desires to rob and kill her mother (caused by the fact that her mother was pregnant) she was afraid of being abandoned by her forever or of never seeing her alive again". This fear could only be dispelled, Klein believes, by analyzing this situation and bringing it to light. Other fears of concrete events are interpreted in the same way. "The unruly behavior of children while being bathed or having their hair washed is, as I have repeatedly found, nothing but a hidden fear of being castrated or having their own body destroyed (13). Here again the psychoanalyst's remedy for the fear just described is analysis. The parent, therefore, instead of attempting

to discover if she had carelessly allowed soap to get into her child's eyes during the hair washing, which would cause it to become a painful and therefore fearful experience to the child, can do nothing to overcome the fear herself. In this situation, as in all fear situations interpreted in this way, the only suggestion offered to the parent is to seek a psychiatrist.

Blanchard (4) makes an interesting comment which suggests one reason for the difficulties often encountered in overcoming children's fears. She states that psychiatric studies of the emotions of children "suggest that the parent-child situation may have influence in the development of emotional reactions or in prolonging or intensifying conditional emotional responses". She suggests that fear, once it has occurred, may continue for purposes of gaining satisfaction long after the fear has died out.

THE PURPOSE OF THIS STUDY

This study, as already mentioned, was planned to determine the usefulness of a particular method of overcoming fear in young children. This method, which consists in helping and encouraging the child to learn various ways of coping actively with the fear situation, has not been attempted under experimental conditions. It differs widely from the method of unconditioning in that it requires that the child be an active participant in the procedure and also because it is applicable to situations which require the child to enter the fear situation, rather than being limited to fears which can be presented to the child while he remains passive. It therefore seemed worth while to attempt to overcome several types of fears by using this method under experimental conditions and if possible in a variety of other situations. Although the method used in this investigation was essentially the one just described, the procedure included what might be considered as several contributing methods. These simply happened to be a part of the situation as a whole and were not considered to be of particular importance. These were verbal urging and reassurance by the experimenter, gradual familiarization with the fear situation, and play with various games at the end of each exposure.

It should be emphasized here that, though this approach was limited to experimental conditions, the method itself could easily be applied by anyone dealing with young children in the home and nursery school. It was not planned to limit the methods used to this one alone if the addition of another method seemed called for in any situation or with any child. The application of the method was not rigid, based on standard directions, etc., but very flexible and based somewhat upon trial and error procedure, as the experimenter varied or changed her approach as seemed fit. This seemed allowable as the study was considered to be mainly an exploratory one.

DESCRIPTION OF SUBJECTS, METHODS, AND PROCEDURE FOR DISCOVERING EXISTING FEARS

The subjects were twenty children attending the nursery school of Lincoln School, New York City, and ranging in age from thirty-nine to fifty-four months. All the children in the nursery school group were included as subjects, with the exception of one who was absent from the school because of illness.

In order to discover the existence of fears to be eliminated, the subjects were exposed to two fear situations. These were situations designed to discover the existence of fears of the dark and fears of height. These two particular situations were chosen because they both required active participation on the part of the child and because they were available. It was necessary that they be of a type that could be simply and easily presented under laboratory conditions. The situations also had to be arranged

in such a way that it would be possible to observe and record the behavior of the subject when exposed to them. And, finally, in order to make such experimental work with young children possible, these fear situations had to be such that a child could participate in them without realizing that he was being experimented upon.

These two situations, dark and height, were two of eight experimental fear situations designed and used by the author in a previous study (10). In this study 105 children were exposed to the eight following experimental fear situations; being left alone, sudden displacement, a dark room, a strangely dressed person, walking along a high board, a loud sound, a harmless snake and a large dog. The two situations selected for use in the present study will be briefly described presently.

The experimenter became well acquainted with each child on the playground and in the nursery before he was asked to participate in the experiments. When the child and the experimenter has thus established friendly relations, the child was invited to come and "play games" with the experimenter.

The experimental room, 16 by 10-1/2 feet, was partitioned off from a large room in the basement of the school building. It contained a small table and two chairs and also the apparatus for the High Boards, which will be described. As soon as the child entered this room he was seated at a small table and given a toy to play with. Some incidental conversation usually took place and the experimenter waited until the child seemed completely at ease before beginning the experiment. The first situation was then presented as follows:

HIGH BOARDS

Description of situation and apparatus:

Two ladders, one fastened to the wall and one standing in the center of the room, supported a board which could be moved so that it might be placed at distances approximately 2, 3, 4, 5, and 6 feet from the floor. Under the board mats were placed for protection. At one end of the board was placed a box of brightly colored toys.

The child's attention was called to the toys on the board, when the child showed an interest in them or expressed a desire for the toys he was taken to the apparatus and lifted up onto the other end of the board, which was always placed 4 feet above the floor for the first trial. When the child was standing on the board the directions were given.

Directions:

- a. Preliminary directions: "See how nicely you can walk across and get a toy."
- b. Urging and reassuring: "You can do it,...(name),...go ahead." If the child said, "I'll fall", etc., the reply was, "No, you won't fall, you can do it."
- c. Offer to accompany: "Then take my hand and walk across."

In each case the board was placed four feet from the floor for the first trial. If the child refused to walk across, or would walk across only with the help of the experimenter, then the board was placed at three feet for the next attempt. Then if the same behavior occurred it was placed at two feet for the next attempt. If the child performed without the experimenter's help on the board when placed at four feet from the floor, it was moved up to five feet, and if that height was accepted, then up to six feet. Between each trial the child was lifted from the board with the toy he had succeeded in obtaining, and was allowed to play with it for a few moments, before continuing. There were always enough toys in the box to provide a lure for several trials. Also it was noted that the very procedure of walking the board seemed in itself to be an incentive to action.

The second situation, Dark Room, was presented at intervals ranging from a few days to a month after the first experiment, and is described as follows:

Dark Room

The room used for this purpose was the experimental room itself. When the lights were turned out this room was not completely dark but as dark as the usual unlighted room in a house at night. After the child had taken one or two steps into the room the objects in the room (during this experiment the apparatus for the High Board was removed) could not easily be discerned, and he had to "feel" his way along as it were. A light chain was suspended from the light on the wall at one side of the room and toward the back. It was 14 feet from the entrance.

The child was brought from the playground by the experimenter as already described, and when they reached the large basement room from which the dark room opened, the experimenter suggested they have a game with a large red ball she was carrying. Then when the game was under way and the child appeared to be enjoying it, the experimenter maneuvered the child so that he was standing near the door to the dark room. She threw the ball toward the child but aimed it so that it went into the dark room instead.

Directions:

a. Preliminary directions: "See where the ball went." (Pointing to the open door.) "Go in and get it and then we'll play ball again."

b. Urging and reassuring: "It's in there. You can find it. Go ahead." If the child continued to refuse and it seemed evident that he would not enter the room, the examiner offered to accompany him.

c. Offer to accompany: "Then we'll both go in and look for the ball."

It should be especially noted here that in each experiment the procedure allowed for four distinct steps; First, the preliminary directions; second, if the child made objections, urging and reassurances; and third, if the child continued to refuse, the experimenter offered to help or accompany the child. Then, fourthly, if the child still refused to perform, even with the help of the experimenter, the experiment was ended. This procedure is important as it is the basis on which the existence of fear was determined.

The experiments always took place during the children's free play period from 9 to 11 in the morning.

The behavior of the subjects in these two situations was recorded on a record blank, devised and used in the study previously mentioned, which consisted of a check list of their behavior occurring in each situation. The outcome of the experiment determined whether or not the child showed fear. Fear was defined, as in the previous study, as either complete refusal to enter into the situation or refusal to enter the fear situation until the experimenter had offered either to accompany or help the child.

The material recorded, however, was not limited to the items on the record blank. The experimenter recorded the child's verbal responses as well as any behavior he exhibited, either before or after the experiments, which seemed pertinent. She also recorded her own procedure.

When the existing fears of entering a strange dark room and walking along a board raised from 4 to 6 feet from the ground had been discovered, the experimenter was ready to attempt to overcome these fears. Of the 20 children exposed to the High Boards only two showed definite indications of fear as determined by the definition of fear just given. The remaining 18 children all walked across the board when raised to 6 feet, several of these however, by their general behavior, including vocal comment, manner of walking, facial expression, etc., indicated that they were apprehensive and not entirely at ease when walking the boards. However, the children selected as subjects for eliminating fear were the two who had shown outstanding signs of fear by refusing to walk the board when placed at 4 feet from the ground.

Of the 20 children exposed to the dark room 14 showed fear as determined by our definition of fear. The remaining 6 showed various degrees of hesitation, but finally entered the dark room alone. In this case, all the children were used as subjects in overcoming fear in order to see if the methods used were successful, how long it would be before all the subjects willingly entered and remained some time in the dark room without hesitation and without showing any overt signs of apprehension.

DESCRIPTION OF PROCEDURE USED IN ATTEMPTING TO OVERCOME FEAR OF THE DARK

The means used to discover any existing fears of the dark in these twenty children has just been described. The 14 subjects who showed fear, according to our definition, refused to enter the dark room in search of the ball and only did so after the experimenter offered to accompany them. Their refusals consisted of withdrawing from the doorway, attempting to pull the experimenter into the room with them, verbal protests and excuses, etc. Some typical verbal protests were, "I want the light," "It's too dark in there," "You come in with me," "I can't go by myself," "Cause it's dark," "Somebody may be in there," and so forth.

The parents of the 14 children who showed fear of the dark were asked in interviews, reported elsewhere, if they had observed fear of the dark in their children. The parents of six of these children reported that their children had shown fear of the dark recently. The other five parents said that their children were not afraid and would sleep alone in a dark room and would enter a dark room in their own homes. Therefore the question might be raised here as to whether these children who showed fear of entering the dark experimental room could really be considered afraid of the dark, or only afraid of the dark strange room in an unfamiliar environment. However, it is equally questionable whether a child who sleeps in or enters a dark room in his own home, but shows fear of entering other unfamiliar

dark places, should be considered as unafraid in the dark. It is also true that the experimental room was not entirely strange to these children. They had all been in the room before when they performed in the High Board experiment, which was presented to them first, and none of them had, at that time, shown any overt signs of fear when entering the room. They had all had a chance to play with toys and games in the room before leaving, which should have created a pleasant association with the room. Also, none of the children showed any fear of the room itself after the experimenter had entered and turned on the light. Therefore it seemed allowable for the purpose of this experiment to consider that the children who refused to enter the dark room were showing fear of the dark itself.

When these 14 children who showed fear of the dark had been selected, the experimenter attempted to overcome their fear by using the following method; The chain of the electric light switch was lengthened by attaching to it an extension chain, on the end of which was fastened a very small phosphorescent pendant. The chain then was long enough to be within the reach of all the children. The phosphorescent pendant gave a slight glow that was visible when the child was standing within a foot or two. This chain was suspended in front of the center of a screen standing against the wall. It was in a position diagonally opposite the doorway toward the back of the room, and fourteen feet from it.

When the child and the experimenter approached the door of the room (the child had previously been told he was going to "play games") the experimenter asked him to go in and turn on the light. She explained to him where the light was and told him he could reach the chain. If he protested and refused to enter she said, "Then I'll go in with you and show you how you can find the light". Then they both entered the room (none of the children refused to enter when accompanied by the experimenter) and the experimenter lead the way over to the light. She showed the child the chain that was hanging in front of the screen, showed him how he could feel along the screen with his fingers in search of it. She also pointed out that he could see the shining pendant when he was near enough, and that this would help him find the chain. She then let the child pull the chain and turn on the light. Then he was asked to turn it off and watch the "little light" which shone in the dark. This gave the child a chance to be accustomed to staying in the dark, and to begin to participate by turning the light on and off. Then it was lighted once more and the child sat down at the table for a few minutes of play with one of several animal puzzles which all the children appeared to enjoy.

In this way the experimenter attempted to direct the child in finding his way around and orienting himself in the dark. Just before leaving the room the child was asked to turn out the light. The experimenter then usually said "Now you'll know where to find the light the next time you come in. You can remember that it hangs in front of the screen, and you can look for the little light at the end of the chain." This again emphasized to the child that he would be expected to make an attempt to cope with the situation himself.

This procedure was repeated with slight variations at each trial until the child entered the room alone. If when he entered he asked for help in finding the light the experimenter stood at the doorway, and directed him by saying "Try to find the screen first" or "Feel along the screen for the chain with your fingers" or "Look for the little light at the end of the chain." When the child found the light himself he was always praised with

some such words as "That's fine. You found the light all by yourself, didn't you." This procedure was continued until the child entered the dark room alone, without asking for help and without any hesitation, and succeeded in finding the light and turning it on without help. It should also be mentioned here that the method was varied or added to in any way that seemed required in order to adapt itself to the needs of a particular child or a specific situation. The only time an entirely different method was tried was when the example of another fearless child was used in the case of one subject. This case is reported in detail in the following discussion.

RESULTS

Of the 14 children who had shown fear of the Dark Room, 13 finally succeeded in entering the room alone and unaided and in finding the light. One succeeded in entering the Dark Room without hesitation and searching for the light several times without any signs of fear, but did not succeed in actually finding it. This was the same child whose fear of height was overcome. Since she had been taken from the nursery school group so many times for that experiment it was decided to limit the number of her exposures to the Dark Room and so this experiment was not completed. The number of different exposures required per child by the 13 whose fear was overcome ranged from three to seven. The remaining 6 children who had not shown fear of the dark, in that they were willing to enter the Dark Room at the first exposure, although some did show signs of hesitation and asked for help, etc., were also exposed to this procedure until they also entered and found the light without help, or any signs of fear. Five of these children did this, one was absent from the nursery school after three trials and so could not complete the experiment.

In order to illustrate the way in which this method was applied and how it worked successfully it seems best to give some examples. These summaries are taken from the actual record blank. They are not a reproduction of the complete record but include only the items of behavior checked, the child's language, some of the experimenter's directions and comments and any other relevant material. The cases selected and presented here are those which illustrate most clearly the change in the child's behavior from evident fear of entering the dark room alone at the first exposure, to complete willingness to enter without any overt signs of fear at the last exposure.

SUMMARY OF ALLAN'S PERFORMANCE IN THE DARK ROOM A BOY OF FORTY-SEVEN MONTHS OF AGE AT THE BEGINNING OF THIS EXPERIMENT

First Exposure, March 15, 1935.

When the ball rolled into the dark room, Allan entered about three steps. He then came out again and when the experimenter urged him to enter, he made verbal protests as follows; "There's no light. Hey, I want the light." "Hey, light the light," and "You come with me." Experimenter then entered the room with him and the ball was found.

Second Exposure, March 29, 1935.

This time, experimenter asked Allan to go in and turn on the light. He stood at the door and said, "Are you going to close the door?" Experimenter; "No, I'll stand here by the door." He then entered slowly two or three steps and then came out again saying, "I can't. You come with me."

Turn the light on." Experimenter then entered room with him and showed him where the light was hanging down in the center of the screen. She also pointed out the small phosphorescent light at the end of the chain and explained that it would help him to find the chain. Allan seemed delighted with it and pulled the light on and off five or six times. He then stood in the dark, moving the light around in front of his eyes saying, "Isn't it beautiful." After he had played with a puzzle and was ready to leave, the experimenter asked him to turn the light off. He did so and again moved the lighted pendant around in the dark saying, "Look at the shadows." He then left the experimenter and walked in the dark over to the door and opened it.

Third Exposure, April 9, 1935.

Allan stood at door of dark room and said, "You come too." He took two or three steps into room and came out again and took experimenter's hand trying to pull her in with him. Experimenter explained that she would stand at the doorway while he looked for the light and that if he could not find it she would come in and help him. He then walked about half way into the room and stopped saying, "You come too." Experimenter then entered with him and showed him where to find the light chain. He turned it on and again showed great interest in the little light at the end of the chain. Turned light off when he left.

Fourth Exposure, April 25, 1935.

Allan entered the dark room without objection saying, "Where is the light?" Experimenter reminded him that it hung in front of the screen. He continued to walk into the room saying, "You come with me" and then, "Shall I walk slowly?" and "If I don't find it, then what?" Experimenter explained, "If you can't find the light I'll come in and help you. But see if you can't find it yourself this time." Allan then searched for the light and finally found it for himself. Experimenter praised his performance. He turned the light off when he left.

Fifth Exposure, May 5, 1935.

Allan entered dark room this time without hesitation or objection. He said "Shall we walk slowly or fast?" When he reached the wall he said, "I'll feel along here." (for the light chain) He found the light and turned it on. After playing with the puzzle, he turned out the light and turned it on. He turned out light when he left saying, "And I'll find it the next time, too."

This record illustrates, in the fifth exposure, how the child was making an evident attempt to handle the situation when he said "I'll feel along here," as he reached for the light chain. His pleasure in his accomplishment in entering and finding the light was evidenced by his remark "And I'll find it next time." In this way, when once he learned to find his way through the dark, his fear disappeared.

Another record, follows:

SUMMARY OF ELLEN'S PERFORMANCE IN THE DARK ROOM
A GIRL OF FORTY-SEVEN MONTHS AT THE BEGINNING OF THE EXPERIMENT

First Exposure, March 14, 1935.

When Ellen was requested to enter the dark room in search of the ball, she stood at the entrance protesting, "It's too dark. I don't like to go far in placed where it's dark. I can't see it in darkness," etc. The experimenter finally entered the room with her and the ball was found.

Second Exposure, March 22, 1935.

As Ellen approached the dark room she said, "I don't want to play ball." The experimenter then said, "We'll go in and play some games then. You can go in and find a game on the table." This is an example of how the general procedure was varied to suit a particular case. Ellen stood at the doorway and refused to enter saying, "I can't, it's too dark. I can't see." Experimenter then entered the room with her.

Third Exposure, April 9, 1935.

When the experimenter requested Ellen to turn on the light, she entered about three steps into the dark room and then stopped saying, "It's too dark, I can't see it." She then came out again, and said, "I can't see. I couldn't find it." Her voice sounded tense and distressed. The experimenter then entered the room with her and showed her where to find the light. She turned it on herself and when leaving, turned it off at experimenter's suggestion.

Fourth Exposure, April 10, 1935.

When experimenter asked Ellen to enter and turn on the light, she said "All right" and walked in alone without hesitation. She went over to the wall where the screen was standing and felt along the screen saying "Is this it?" "Is this it?" The experimenter directed from the doorway by offering suggestions such as "Move that way a little more, Ellen," etc. She finally found the light and turned it on herself. She was praised for her performance.

Fifth Exposure, May 1, 1935.

Ellen entered the room without hesitation or objection. As she searched for the light she called out to the experimenter, who stood just outside the door "Over this way?" "A little further?" "Over this way?" Experimenter gave one or two directions and she finally found the light and turned it on.

Sixth Exposure, May 8, 1935.

Ellen entered the dark room without hesitation and walked over to the screen saying, "This way - a little further this way?" Then before the experimenter could answer her she reached the light and turned it on, calling out, "Here, I got it." Then turned and smiled appearing very pleased.

This record also shows how once the child has acquired skill in dealing with the situation the fear disappeared. This child's first reaction to the dark was "I don't like to go far in places where it's dark." But this

gradually changed and at the end of six exposures she entered without hesitation and searched around in the darkness until she found the light.

It should be emphasized here that it is important that the light switch should be at the back of the room. If it is right by the doorway then the child does not need actually to enter the room, but can turn on the light from the doorway thus lighting the room, removing the fear stimulus, and avoiding any participation in the situation. But if the light is placed near the back of the room so that the child is required to walk into the dark and search around for it then he is really learning to cope with the dark.

That the children appeared to make definite attempts to remember and carry out some of the suggestions made by the experimenter to help them find the light is illustrated by their comments such as: "Is it here? Is it in this section (of the screen)?" "I am feeling the screen," "I feel the screen, I found it (the light)" "I saw that little tiny light (the phosphorescent pendant)," "Where are you, Mr. Light?" "I will see a white thing." "I touch the wall, I find the screen" "Am I in the middle of the screen?" One child volunteered as he walked toward the experimental room, "Now I'm going to remember where in your room when I see the little light thing." And another showed the experimenter how he felt along the screen and found the light saying, "I did it just like this." Another child said as he left the room at the end of one trial "Next time I'll remember where that little light will be. All right?" And another child, "I'll know where it is next time", and another "The next time I'm going to do it all by myself."

A child whose parents had been quite disturbed by his continued fear of the dark at home learned to enter the dark room without hesitation in three exposures. After he had successfully found the light and was playing at the table with a puzzle he stopped in his play, looked over at the light chain and then at the experimenter and said with a wide smile, "I know where the light is".

These examples all present evidence that factors within the child himself supply a potent element in the process of eliminating fear. These children all showed an active interest and cooperation in the procedure. This is probably a factor of the greatest importance in the elimination of children's fears.

The example of the fearless behavior of another child did not appear to be of much use in the one case where it was tried. This child, Paul, aged forty-one months, did not appear to be making any progress in learning to enter the dark and so after the third exposure another child was introduced into the situation. This child entered the dark room and turned on the light while the fearful child watched. But the next time Paul came to the dark room he refused to enter as before. At another trial the fearless child entered again, and again Paul refused. Then the other child volunteered to go in with Paul saying, "You stay with me and I'll show you." Paul entered willingly when accompanied by the other child. But a week later he again refused to enter alone. This exposure and the following one in which he finally performed alone are summarized below.

Sixth Exposure, May 1, 1935.

Paul enters room slowly - goes in about three feet and stops. Then comes out again. Stands at doorway and makes verbal protest; "I can't, I can't

find it." "I can't." His voice sounds tense and distressed. Experimenter offers to accompany child and shows him the light chain. He turns light on and off several times. Then experimenter turns light off again and walks to the door with Paul. She says, "I'll stand right here and you can walk over to the light just as we did a moment ago and turn it on yourself." Paul does so. Experimenter, "Now you'll know how to find the light when you come in next time."

Seventh Exposure, May 3, 1935.

(Note) Room darker than usual as light in adjoining room not on.

Paul enters room at experimenter's request without hesitation or verbal protest. He walks over to the wall near the screen and feels for the screen saying, "I can't find it." Experimenter directs him saying, "Feel along the wall until you come to the screen." Paul finds chain and turns on light - then looks at experimenter and smiles. Experimenter praises him. This record suggests that the experimenter's procedure in the Sixth Exposure where she first helped him to find the light and then turned it out and let him immediately walk alone from the doorway over to the light, thus for the first time finding his way alone through the dark, was more successful in overcoming fear than the example of another fearless child. However, his willingness to enter the room alone at the Seventh Exposure may have been caused by the cumulative effect of the procedures used in all six trials, including that of the example of another fearless child.

The data presented here do seem to indicate definitely that this method was successful in overcoming fear of this specific dark room in these thirteen children who had previously been afraid. Although the procedure may have been varied slightly at times, when the experimenter changed the wording of her directions as it seemed desirable, the method remained the same throughout (except in the one case just cited). The method was essentially that of showing the child how he could find his way through the dark, in other words he acquired the ability to cope with his fear.

There is, however, an obvious criticism which can be made of these data. The experiment did not go far enough. It had been planned originally to discover if these children, who had overcome their fear of the dark room specifically, had also overcome fear of the dark in other surroundings. There were six children whose parents reported they showed fear of entering dark rooms in their own homes. It would have been of interest if the experimenter could have observed whether these children were now willing to enter such dark places in their own homes, and this had been the intention. However, this plan proved to be impossible to carry out, for the present experiment was completed near the end of May, and at that time it did not become dark until some time after these children had been put to bed at night. Therefore there was no way in which the experimenter could observe how the children would behave in a dark room in their own homes. Neither was there any other room available in the nursery school which could be artificially darkened in the same manner as the experimental room. For this reason, the results on this point had to remain inconclusive.

However, in spite of this it remains true that encouraging the child to enter into the feared situation and participate actively in learning ways of coping with the fear actually did succeed in overcoming this specific fear in these children. Therefore it seems allowable to suggest that this method might be used successfully by parents and others who deal with the fears of young children. It has the advantage of being simple and easy to

apply.

DESCRIPTION OF PROCEDURE USED IN ATTEMPTING TO OVERCOME FEAR OF HEIGHT

As already mentioned the procedure consisted in aiding and encouraging the child to learn ways of coping with the feared situations by actively participating in them. With this in mind, the experimenter varied her application of this method to suit the two quite different fear situations.

The procedure as it was applied in the case of fear of walking the high boards was as follows; The board was placed at 4 feet from the ground for the first trial. The two children who showed fear were both fearful at this height. When the child still refused to walk across the board alone the experimenter offered her hand and let the child walk across the board holding to her hand. This gave the child a chance immediately to participate in the fear situation. Then the board was moved down one foot, so that it was 3 feet from the ground. The child was then asked to walk across by himself. If the child did so he was allowed to walk across at this height several times, thus learning to cope with the situation when the fear stimulus was somewhat reduced. When the child appeared to be able to walk at this height without fear, that is, without hesitating or asking for help, the board was raised again to 4 feet and the experimenter suggested that he walk across by himself. If the child had refused to walk at 3 feet the board was moved down to 2 feet and the same procedure followed.

In each case the experimenter gave the minimum amount of help. The entire emphasis of her attitude was on the child coping with the situation himself. Each time the child performed alone he was praised in some such terms as "That's fine. You walked across all by yourself, didn't you." Each time the child reached the end of the board he was allowed to take a toy from the box and play with it for a few minutes, before performing again. This provided a lure in the form of a pleasant result of each trial, but in the case of the child whose fear was overcome the records definitely indicate the act of walking along the boards successfully was of more interest to the child than the fact of getting a toy. There was no previously determined number of trials set for each exposure but the experimenter terminated each experiment before signs of fatigue were apparent. At the end of each exposure the experimenter told the child that he would be allowed to return some other day.

This procedure was followed with all the subsequent exposures. Each time the child walked across the board alone at one height it was moved up one foot higher until it reached the maximum height of 6 feet from the ground.

RESULTS

This method was successful in overcoming the fear of one of the two children on whom it was tried. It was unsuccessful with the other child, even when combined with the method of "social imitation" or examples of fearlessness shown by other children.

In order to illustrate the gradual overcoming of this fear in child A, a girl who was 39 months old when the experiment started, it seems best to give excerpts from the summaries of the records taken at the time. These excerpts give a much clearer picture of how the method was applied and its results than could be given by just a general description. These summaries

are not a reproduction of the actual record sheet, but were taken from the records in the same manner as those presented in the Dark Room experiments.

In the following summary some of the records of the eleven different days on which this child was exposed to the high boards are omitted. This was done merely for lack of space. The records which are presented are the ones which appear to show most clearly the various stages of the child's progress in overcoming this fear. The numerals indicate the height at which the board was placed. The letters indicate the number of trials, a being the first, b the second, etc.

SUMMARY OF CHILD A,
A GIRL 39 MONTHS OLD AT THE BEGINNING OF THE EXPERIMENT

First Exposure, February 26, 1935.

As Jean was lifted to the board she said, "I'll fall, fall." "I don't want to" etc. in a whining, crying tone of voice. Reached out toward and held on to assistant, knelt on board and refused to stand up until experimenter offered to hold her hand as she walked. Finally walked across by herself slowly and carefully. Praised for her performance.

5b Jean watched board being moved up to five feet and said "Is it higher now; I don't like it higher." Experimenter, "Yes, that's the way we play this game." Jean said, "I just get one (toy) that's all," then, "I don't like it so high. Why don't you put it down here?" Experimenter then said, "When you get up there I'll hold your hand as you walk if you like." Jean made no further objections and was lifted to the board. She held to assistant when standing on board, then experimenter offered her hand and Jean walked across holding to experimenter.

5c When asked to walk again Jean said, "I don't like it so high." This objection was ignored. She then allowed herself to be lifted up. When standing on the board she made a slight movement toward experimenter. Then walked across by herself without any urging. She started to walk slowly, but then she began walking at a normal pace and seemed much more at ease. Praised.

5d Made no objections this time and walked across at normal pace. Praised by experimenter.

5e Said, "Now what shall I do?" and walked without hesitation, at normal pace.

5f Same.

5g "I want something else." Walked without hesitation.

Note: The last three times Jean walked the 5 foot board she made no movement toward the experimenter to ask for help and walked at a normal pace. She seemed entirely at ease. As she was leaving the room the experimenter asked her to come back for more games tomorrow. She nodded, saying, "Uh huh," then looked up at the board and smiled, saying, "Way up there?" Experimenter, "Yes," then Jean grinned broadly.

Fifth Exposure, March 19, 1935.

After finishing the puzzle, Jean said, "Now I'd like to play on the board." Looked at board, said "That's so high," and walked across without hesitation.

5b Looks at board, grins, says, "Now they put it up there." walks without hesitation.

6c Jean said, "I want another toy," smiled and ran to board. The board

was, by mistake, not put in place quite firmly as Jean stood on it. She held momentarily to the assistant. Then she started to walk and the board shook slightly. Jean looked uneasy and started to bend her knees as though to sit down and looked at the experimenter. Experimenter reassured her saying, "You're all right, Jean." She then stood up and took two or three steps and the board shook again. She bent her knees as before and the experimenter again reassured her. She took a few steps and this happened a third time. Then she walked to the end of the board and continued to stand while she leaned over to take a toy.

6d In spite of Jean's definite uneasiness when the board shook she made no objection when asked to walk the board again and smiled, saying, "Shall I get the truck or the elephant?" This time the board was adjusted firmly and did not move. She walked across by herself slowly and carefully taking small jerky steps but did not bend her knees or attempt to sit down as before.

6e This time Jean ran to the chair smiling, and as the assistant started to lift her up she cooperated by giving a jump from the chair. Walked across slowly and very carefully.

Seventh Exposure, April 26, 1935.

4a Walks at normal pace and when reaches box of toys leans over with knees straight, instead of crouching, to reach a toy.

5b "Now I want another one." Walks across with long, steady steps and bends over with knees straight when taking a toy.

6c Walks across with long steps. Stands at far end swinging arms back and forth and completely at ease before she takes toy.

6d "Now I want sompin else." Walks across as in 6c.

6e "Now I want another toy." Walks with long, firm steps. When reaches toys she takes one and turns around (without suggestion) and starts back to the other end. Then sees that assistant is not there to take her down - stops, opens mouth, says, "I'm afraid up here." Then turns around again and walks back to where assistant is standing, who takes her down.

Eighth Exposure, April 29, 1935.

6a Note. (This time it was decided to begin with the 6 foot board instead of starting at 4 feet and gradually increasing the height. This was done to see if any fear would occur when the child was placed immediately 6 feet from the ground without any preliminary graded approach.)

Jean goes over to board without any suggestion. Walks across at normal pace with firm steps, takes a toy and says, "I want to walk back again." Turns around and walks back to the other end and waits there until assistant comes to take her down.

6b Goes to board without suggestion. Walks across with long, firm steps. Stands by box of toys swinging arms back and forth and chanting "Which toy shall I take, which toy shall I take." Appearance of complete confidence and ease. Then takes toy, says, "I want to walk back again," and turns and walks back to the other end.

The two following exposures differ from the previous ones in that the apparatus was moved from the experimental room and set up on the nursery school playground. This was done in order to discover if the lack of fear now shown by this child would carry over to a different environment or whether the fear had been overcome only when the child was performing in the experimental room.

The apparatus was placed on the playground near the jungle gym so that the board, raised to 6 feet, was secured at one end by the top rung of the jungle gym and at the other end by the ladder already described. The board was thus running out at right angles from the jungle gym.

The situation thus arranged could not be controlled as it had been in the experimental room. That is, other children were present and many made comments about the apparatus. Although no other child was allowed to walk the board many of them climbed up the ladder before the board was set in place and jumped off on to the mats. Jean observed all this in that she stood near by watching. The summary of these two exposures follows:

Tenth Exposure, May 17, 1935.

The high board apparatus is set up on the playground. As soon as it appears the children crowd around and ask many questions. These include children of the 4 year group as well as the 3 year group. Jean is nearby watching but does not make comment.

Another child asks workman why he put the mats under the ladder. He replies, "That's for you to fall on." Ladder is placed near jungle gym but board is not put in place yet in order to prevent other children from walking board. Children of 4 year group climb ladder and jump off backwards on the mat. There is much talk about falling, the possibility of the ladder tipping, etc. Jean watches and appears to hear all this.

A boy climbs up ladder and jumps off backwards. When he falls on to mat he hurts his back and starts to cry. Teacher rubs his back. Another 4-year-old child asks, "Does it hurt?" "Are you hurt bad?" etc. Jean seems to observe all this. Child soon stops crying and then leaves. Other children of the 4-year-group climb ladder.

Finally all children have left playground except Jean and one other. Board is put in place. Jean is told she can have the first turn.

6a When experimenter invited Jean to walk the board she made several objections and ran aimlessly around the playground. This appeared to be temporary negativism as she finally went to board and made objections to being lifted up, saying, "I could go up to that jungle gym." Walks across board and talks about jungle gym. Walks with slow, slightly uncertain, jerky steps. Then turns without suggestions and walks back again.

6b Plays with toy a moment and says "Am I going to have just one turn today?" Goes to board and walks as before, with slow, jerky steps.

Eleventh Exposure, May 20, 1935.

Apparatus was set up on the playground. Jean was taken back to the nursery school room by mistake, then returned to playground after other children had left. Ran to experimenter and said, "Are we going up there?" Grins. "Who's going to take me up there, you?" This time no toys were placed on the board. Jean walked without hesitation, taking long, firm steps. She turned around when she reached the other end and walked back again, then turned and walked again and finally repeated this a third time. Her manner indicated complete self confidence and ease.

The last records indicate that once the child had lost her fear in the one specific situation of the experimental room, she also showed no signs of fear of height, as measured by walking a board placed 6 feet from the ground, in a quite different situation. It is particularly interesting to

note that in spite of the fact that she probably heard other children talking about falling and saw one child fall from the ladder and cry, this did not appear to influence her behavior to any appreciable extent. She walked the board without objection or any observable signs of apprehension, although during the first exposure on the playground she walked with slow and slightly jerky steps. But during the second exposure she walked back and forth across the board three times, each time taking long, firm steps and seemed completely at ease.

The result of this experiment with this one child indicates that the method used here can be successful in overcoming this type of fear, although this does not imply that it will always work with every child. The summaries of each exposure illustrate the gradual change in this child's behavior from real fear when on the board at 4 feet, shown by whining, "I'll fall, fall," and holding to the experimenter, kneeling on the board and refusing to walk without help, to walking 6 feet from the ground with complete confidence. The records also illustrate her increasing skill in maintaining her balance, both when walking and when leaning over to take a toy. They also show that as her ability to cope with the situation increased her interest and enjoyment in the procedure increased also, indicated by performing without waiting for the experimenter's suggestion and verbal comments such as, "Now I'd like to play on the board," (fifth exposure). She also varied the procedure, such as walking over to get the toy and then turning around (learning a new skill) and walking back again, (seventh exposure). The first time she did this she showed some fear, but on the next exposure she repeated it, without suggestion from the experimenter, and seemed to enjoy it.

The results of this experiment would be more conclusive if it had been possible to expose this child to four or five other situations designed to discover if the lack of fear shown when walking a board 6 feet from the ground in the experimental room and on the nursery school playground would carry over to performing in other types of high places. It would also have been better if the child could have been encouraged and helped to increase her skill and ability in climbing at the same time to discover whether her lack of fear when on a high place plus skill in climbing would enable her to perform with ease on the highest rungs of the jungle gym. But this was not possible because of the limited amount of time available.

There is one other point that might be mentioned here. The criticism might be offered that the child was not really afraid of high places in general, but just showed fear in this particular situation because it was new or strange. If this had been the case then when she finally performed on the board at 6 feet she would have done so not because the fear of height had been overcome, but because she had become accustomed to the new situation. That this was not the case is shown by the accounts of her general behavior in the nursery school environment. These reports, written by the nursery school teacher who had particular charge of her and knew her best, include descriptions of definitely fearful behavior on the playground equipment, especially those requiring climbing and balancing ability, such as the jungle gym and the rocking board. They particularly mentioned her insecurity in climbing, and her poor muscle coordination which caused her to fall often when she was running on clear level ground. These facts suggest that Jean probably needed to increase her skill in walking and balancing on high places before her fear could be overcome. This was what the experimenter's method attempted to do. Therefore the fact that she finally showed no fear of walking on a board raised 6 feet from the ground indicates that she had probably acquired a greater proficiency in these motor skills.

That this method or combination of methods cannot be expected to be always successful in overcoming this fear in every child, is shown by its failure when used with the other child who was afraid on the high boards. This

was a boy, James, 51 months old. The summaries of the first two times he was exposed to the experimental situation are presented below.

SUMMARY OF CHILD B,
A BOY 51 MONTHS OLD AT THE BEGINNING OF THE EXPERIMENT

First Exposure, February 26, 1935.

4a As James was placed on the board he held to assistant, his knees bent and he kneeled on the board, and when asked to walk, said, "I can't. It's too high. I'll fall. I'll hurt myself," etc. He finally crawled across.

3b James held to assistant as he was placed on the board, then kneeled on the board. Finally, after protesting, "I'll fall," he walked across holding to experimenter's hand.

2c James held to assistant when placed on the board. He finally walked across alone at this height very cautiously and carefully, seeming not at all secure. He kneeled on the board, about a foot from the box, to take a toy.

3d As James watched board being moved up again he said, "Where are you putting it? Way up there?" When placed on board held to assistant with knees bent and said, "I can't, I'll fall. Hold my hand." Walked across holding to experimenter.

3e James asked the experimenter whether any other child had been to the experimental room and the experimenter told him that Harry had. Then James said, "What did he do?" Experimenter said that Harry walked the board at the very top of the ladder, and pointed to the rung at 6 feet. James, "Way up there? Way up there where those things are?" James then asked to walk the board again. When placed on board, held to assistant, then walked 2 steps by himself. Then reached toward experimenter, said, "I'll fall, hold my hand." Walked across holding to experimenter.

Second Exposure, March 1, 1935.

4a As James approached the board he said, "I want to crawl." Experimenter explained, "The way to play this game James is to always walk across." Then James said, "Will you hold my hand?" When lifted to board held to assistant, then walked holding to experimenter's hand. Kneeled on board after crossing to take toy.

3b James held to ladder when lifted to board. Then walked across by himself slowly and carefully, taking small, uncertain steps. Kneeled at end to take toy.

3c Same performance as above. When he reached end of board, experimenter asked him to remain standing when he took the toy. He replied, "No, I can't because I'll bump right into the box." This response was irrelevant and evasive because he was not near enough to the box to bump into it.

4d Board placed at 4 feet again. As James walked toward board he said over and over, "You'll have to hold my hand." James lifted to board and held to experimenter's hand. When experimenter attempted to remove her hand, he clutched the ladder, bent his knees, and sat on the board saying, "No, I can't. Hold my hand." When experimenter offered her hand again he stood up and walked across holding to her hand. Kneeled at end.

4e James said, "I want to crawl this time." "Hold my hand, then." Experimenter, "All right." Walked holding to experimenter but seemed much more at ease. Kneeled at end of board to take toy.

As James did not appear to be making much progress in these two exposures it was decided to take advantage of his interest in the performance of another child, as indicated by his questions concerning Harry. It seemed advisable here to determine what effect, if any, it would have on James' behavior to allow him to watch another child whom he knew and played with, perform without any signs of fear. The result of this attempt is summarized below.

Third Exposure, March 4, 1935.

4a Harry and James were brought together to experimental room. James was told he could have a turn first and he said, "That's too high for me." Then, "I can't, it's too high. Hold my hand." Then walked holding to experimenter. Harry then walked 4 foot board alone. James sat at table and watched. Board then placed at 6 feet. James said, "Harry, look where it is." Harry walked over to board quite unconcernedly, climbed up on chair, and let assistant place him on board. Experimenter asked James to watch Harry who walked across without hesitation.

4b Board placed at 4 feet again. Experimenter said, "Now, James, I want you to walk across all by yourself this time." James, "Will you walk beside me?" Experimenter, "Yes." James then walked the board without help, although experimenter walked along beside him. As he walked he bent over and walked very slowly and carefully, and knelt at the end of the board when he took the toy. Experimenter praised this performance.

4c Harry had another turn on the board before James was asked to walk again. James then climbed from the chair to the board himself and stood up without help. As he started to walk he called, "Watch me Harry." Harry got up on the chair and watched. James walked across alone, bending over as before, but this time the experimenter did not walk beside him.

4d As Harry climbed onto the board for his turn, James tried to get onto the board first. He was asked to wait until Harry had finished. James then climbed up himself and walked alone, still bending over. Knelt on board to get toy.

4e By this time there were no more toys in the box. James, however, with no suggestion from the experimenter asked if he could put back the toy he was playing with into the box. He evidently wanted this time to walk on the board. This time when experimenter asked him to stand up straight instead of leaning over, he did so and walked the remainder of the board with much more assurance.

Note; In 4d and 4e James is showing active interest and cooperation in the performance.

This record indicates that the addition of the example of a fearless child did have a definite effect on James' performance. This time, for the first time, he walked the board, placed at 4 feet without help. Two days later he was brought back to the experimental room alone to see if he would continue to show this progress. However, this was not the case. He refused to walk alone at 4 feet. He walked across twice at this height holding to the experimenter but the third time she stood away from the board so that he could not reach her. He then said, "I'm tired of this board. I don't want any more. It's too small. I'll fall." He sat on the board holding to the ladder and refused to stand up until the experimenter offered her hand. When the board was placed at 3 feet he walked across without help twice, although slowly and carefully and bending over as he walked.

When the nursery school teacher who had charge of the group of which he was a member was questioned about him, she stated that this type of behavior was quite typical. He frequently appeared to be making some progress in learning some nursery school procedure, such as dressing, washing, etc., and then the next day returned to his previous level, refusing, giving irrelevant excuses, etc. For James to relapse into "babyish" behavior when he came up against something which appeared difficult was not unusual.

For the fifth exposure, two other boys from the nursery school group were introduced. This time James was asked to perform first at 4 feet, to see if an audience of two of his friends would affect his behavior. However, he refused to walk alone. Then the board was moved to 6 feet and James watched as both children walked at this height. The board was again placed at 4 feet and again he refused. He then said, "I'll show you where

I want you to put it," and pointed to the ladder at 3 feet. When the board was placed there he stood on it and held to the ladder, then said, "I'll crawl." When urged to stand and walk alone he said, "I'm not going across, ever." He was then lifted from the board without being allowed to get a toy.

In the six following exposures, including one with Harry with whom he had formerly walked at 4 feet, one in which the experimenter did not aid him when he refused to walk at 3 feet but explained if he wanted a toy he would have to walk alone; and one where another child, with whom he had recently been playing, performed without fear, his behavior was essentially the same. In the eleventh and last exposure his behavior showed no progress beyond that of the first exposure.

Before the experimenter had completed eleven unsuccessful attempts to overcome this fear in this child, she felt definitely that she was trying to handle more than fear alone. The behavior that James showed in the experiment was, as already mentioned, quite typical of his behavior whenever he came up against anything difficult. His performance contrasted sharply with that of child A, in many aspects of the situation. Child A cooperated with the experimenter from the start, she seemed to enjoy the progress she was making and appeared to feel a definite sense of accomplishment when she succeeded in walking alone at a height before unattempted. James, on the other hand, continually asked for help and preferred to relapse into babyish behavior rather than make any attempt to cope with the situation. Although the experimenter tried to help and encourage him to participate actively and learn ways of handling the situation, such as learning to balance himself, take firm, sure steps, etc., James showed no inclination to make these attempts. He definitely seemed to prefer the other type of behavior.

This suggested that perhaps Blanchard's statement that fear sometimes continues for purposes of gaining satisfaction and that factors in the parent-child relationship often result in the prolonging or intensifying of emotional reactions, might be the case here.

The developmental and case history records of this child were examined to see if they might throw some light on this point. These records, kept by the nursery school, consisted of descriptive summaries of the child's progress in the nursery school; information blanks filled out by the parents consisting of family history, description of home environment and the child's early development; reports of home visits, etc. These records did yield information that appeared to be of significance.

The information provided by the parents in September, five months before the experiment was started, is of interest. His mother at that time described him as an only grandchild for four grandparents. She stated that he had been too much the center of attention. She also mentioned that he was afraid of heights, big slides, etc., that he needed motor and muscular development more than anything else, and that he "seemed absolutely unimpressed by examples of other children doing better than he at athletics." His early physical development had been retarded because of illness. He never sat up alone, or walked with help. When he recovered from his illness he walked alone at 14 months. He also had feeding difficulties with constantly changing formulas during his first year, and is sensitive to starches. It is therefore likely that his early illnesses caused his parents and relatives to adopt an over-protective attitude toward him and to encourage inadvertently the "babyish" behavior that is still apparent. At the same time there is evidence to indicate that they sometimes expected too much of him.

It is of particular significance here that during the period, from

February through May, that the experimenter was attempting to overcome his fear of heights, he was being deprived of some of this attention at home. First, just before the fourth exposure, when he lost the progress he appeared to make in the preceding exposure with Harry, his nurse, who had been with the family for a year and a half and on whom he was very dependent, left the family. He announced this to the experimenter at the time saying, "I have a new nurse. Jan's got another job." Then his mother was pregnant and went to the hospital the end of April. She was away from home for several weeks, returning home with the new baby. Therefore it is very likely that during this period, James was no longer the center of attention at home. He was being required at home to make new adjustments at the time when the experiments were being conducted. It is possible that being required to make two such simultaneous adjustments in his behavior was too much for him.

The fact that his mother reported that he was afraid of heights and that he seemed unimpressed by examples of other children suggests that some stress may have been placed on this at home. It appears that the treatment he received at home was not consistent. Sometimes he was expected to do things beyond his ability and at other times he was allowed to get what he wanted, by whining, crying and relapsing into behavior below the level of that of a child of his age. His fear of heights may, in this way, have become a means of gaining satisfaction. Therefore the very fact that the experimenter made him the center of attention during the experiments may have been the reason why he made no attempt to learn to cope with the situation, but appeared to prefer to ask for help, etc.

In other words, the experimenter was not dealing only with James' fear of heights but with his whole behavior pattern. In attempting to overcome his fear of heights she was attempting to change a type of reaction which he showed consistently in many other situations that were not fear inspiring, but which required him to make persistent efforts at mastering.

This is probably a point of great importance in dealing with any fear, for fear is not a specific entity but is tied up with the child's total personality. If there are factors in the child's home environment and in the parent-child relationship which tend to prolong or encourage certain types of fear behavior, then these must be changed first before much success in overcoming the specific fear can be expected.

That factors within the child himself supply a potent element in the process of overcoming fear has already been mentioned. Further evidence of this appeared in the experiments. Eight of the children had been among the subjects of experiments the preceding year. Three of these had shown fear of the high boards at that time. One of these was the child Jean, whose fear was overcome during the present experiment. The remaining two children showed no fear when exposed to the same situation this year. No particular attempt was made to overcome fear in these two children. The factors within the child himself of general maturation and growth plus increased experience were undoubtedly operating here. It is also of interest that both these children appeared to be aware of their progress, although the experimenter said nothing to suggest this. One child, a girl of forty-seven months, said as she was standing on the 4 foot board, "I'm not afraid now. I was last year." The other child, a girl of the same age, when she walked the boards placed at 4, 5 and 6 feet, said at the completion of each performance, "There, good!"

This suggests that these children were pleased with and aware of their increased ability to accomplish a feat that was formerly fear inspiring. It is this element, the child's own desire to overcome the fear, which is sometimes apparent (this is strikingly apparent in the Dark Room experiment reported previously) which aids greatly any attempt to eliminate fear. When it is entirely absent, as appeared to be the case with James, the problem of overcoming the fear is made much more difficult.

CONCLUSION

This investigation attempted to discover the adequacy of a method of overcoming fear of a high place and a dark room under experimental conditions. The method was essentially that of directing and aiding the child in learning various ways of coping with the fear situation. It required the child to be an active participant in the procedure. The procedure also included verbal reassurance, gradual familiarization with the fear situation, and a pleasant conclusion to each performance in the form of a game.

The subjects were twenty children attending a private nursery school. Their ages ranged from thirty-nine to fifty-four months. These children were exposed to two experimental fear situations, namely; a board that could be raised from two to six feet from the ground, and a dark room, to discover any existing fears.

Of these children, only two showed definite fear of the high board, all the others walked across at six feet from the ground. There were fourteen children who showed fear of the dark room in that they refused to enter unless accompanied by the experimenter.

The method which was used in attempting to overcome fear of the high board consisted in aiding and encouraging the child to acquire the abilities which would enable him to participate in the situation. This was successful with one of the children who had formerly been afraid, but it was unsuccessful with the other child. The child whose fear was overcome finally walked across the board when raised to six feet, with complete confidence and ease, not only in the experimental room, but also when it was moved to the nursery school playground. The other child made no progress at all in overcoming his fear, even when the method described was combined with allowing the child to observe the example of several other completely fearless children. Information concerning the general behavior and personality of this child suggested that factors in the home environment and in the parent-child relationship were operating in a way which tended to prolong or encourage this type of fear behavior.

The method was successful in overcoming the fears of thirteen of the fourteen children who were afraid of the dark room. The experiment was not completed with one child. The procedure used here helped the child to learn ways of orienting himself and finding his way through the dark, in order to turn a light on at the back of the room. In the case of one child, another method, that of the example of a fearless child, was used.

The conclusions to be drawn from these results are limited by the fact that no evidence was available to indicate whether the fears of height and dark which were overcome, were eliminated only with reference to the experimental fear situation or whether those fears would also be eliminated in other situations in which they might be encountered.

The behavior of the children while they were being exposed to the procedure indicated that factors within the child himself supply a potent element in the progress of overcoming fear.

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EXPERIMENTS IN THE MEASUREMENT OF ATTITUDES TOWARD CHILDREN:
1899-1935

RALPH M. STODDILL

One of the most impressive features of contemporary literature on mental hygiene and child guidance is the frequent and emphatic reference to unwholesome parental attitudes as primary factors in the causation of behavior maladjustments in children. Attempts to measure these attitudes objectively, however, are of comparatively recent origin. Yet a survey of the literature yields almost two hundred titles reporting experiments in the measurement of parent-child relationships and the effects of parental attitudes upon the child. These are in addition to Thurston's (25) comprehensive bibliography of some 270 pages covering particularly the mental hygiene aspects of parent-child relationships.

The present paper is concerned only with those investigations in which some test or questionnaire has been employed for recording and scoring the attitudes of adults toward children. This procedure unfortunately eliminates from consideration such valuable contributions as the Smith College Studies in which case history data are analyzed to determine parental attitudes.

The brief abstracts which follow give some idea of the measuring technique used in each research, and the results obtained.

THE EXPERIMENTS

As early as 1899 Sears (16) employed the questionnaire technique in a study of adult attitudes toward the punishment of children. The answers of 486 adults indicate that the majority believe the chief purposes of punishment are to prevent wrong doing and to reform the offender. Punishable acts are any offenses committed intentionally, persistently or by repeated carelessness. This applies especially to such offenses as wilful disobedience, disorder, running away and quarreling. Offenses not regarded as punishable are slight or unintentional mistakes, and offenses committed through ignorance, weakness or fright. Almost a third of these adults believe that a child should be punished, even though the child's fault was caused by the parents' or teachers' conduct.

The first really systematic attempt to measure the attitudes of parents toward children was that of Laws (10) published in 1927. The administration of a questionnaire to a study group of fifty mothers indicates that mothers tend to rate themselves in their relations to their children and their practices concerning them somewhat lower (that is, less constant, less gentle, less abrupt, less impatient, etc.) than observers rate them. However, these mothers tend to rate the behavior of their children somewhat higher than observers rate them. These results suggest "that children appear to their parents in a somewhat better light than they do to their neighbors and friends except where the responses are too great a source of irritation and annoyance to the parent or where children are likely to make a better showing to persons outside the family".

Wickman (26) made an extensive analysis of teachers' reports of behavior problems observed in school children. Violations of school and classroom rules were frequently observed, while personality difficulties were rarely mentioned. Fifty representative items of children's school behavior were employed in the construction of an attitude questionnaire which was administered to 511 teachers and 30 mental hygienists. Each item was rated on a linear scale as to the degree of seriousness with which it was regarded. Wickman's results indicate that teachers regard immoralities, transgressions against authority and violations of classroom routine as more serious than maladjusted personality and behavior traits. Mental hygienists, on the contrary, regard withdrawing, recessive personality traits as more serious than aggressive behavior traits, or violations against authority or school routine.

Using Wickman's questionnaire, Bain (2) compared three groups of graduate

students tested in 1932 at Teachers College, Columbia University, with three similar classes tested there by Wickman in 1927. The results of the students correlated more highly with those of the mental hygienists at the beginning of the semester than do those of the 1927 students at the end of the semester of study, but do not show much improvement at the end of the semester. The items which were rated significantly more serious in 1932 than in 1927 have to do with recessive, withdrawing behavior; while those which were rated significantly less serious in 1932 are concerned with aggressive behavior and moral questions.

Yourman (28) and Snyder (17) have also verified Wickman's findings regarding the conservatism of teachers' attitudes toward children.

MacClenathon (12) had teachers and parents rate a list of 50 child misbehavior traits as to frequency of occurrence and degree of seriousness. Each group (teachers and parents) "tends to rank as most serious those behavior patterns interfering most with the smooth functioning of that group's affairs".

Stogdill (18), using an adaptation of Wickman's attitude schedule, made a comparative study of the attitudes of parents and mental hygienists. Seventy items of child behavior were rated on a 1 to 10 scale, according to whether they were considered to be of no consequence, of little consequence, undesirable, serious, or very serious. It was found that parents regard transgressions against morality and opposition to parental control as more undesirable than disrupting the quiet and routine of the household and breaches of family etiquette. These in turn are regarded as more undesirable than self-centered, withdrawing types of behavior. Mental hygienists, however, regarded extreme withdrawing behavior and unsocial behavior as more serious than transgressions against morality, breaches of family etiquette, and disrupting the quiet and routine of the household. These in turn are regarded as more serious than opposition to parental control.

In a subsequent study (19), comparing the above mentioned parents and psychologists with a group of college students in a course in mental hygiene, the following rank order correlations (computed from the rank order arrangement of the seventy items as rated by the three groups) were obtained: Mental hygienists with parents .45; mental hygienists with students .58; parents with students .94. Students tend to be more liberal in their rating of behavior than parents are, but not significantly so.

In an investigation conducted in 1930, Stogdill (23) obtained responses to a list of 50 questions regarding the age at which children might be allowed to assume responsibilities. As compared with psychologists, parents are extremely reluctant to grant children (even when the children reach adulthood) responsibilities in social contacts, in love affairs, and in freedom from parental curiosity and dominance.

Ojemann (13) has improved the technique, last mentioned using separate scales for the measurement of attitudes toward pre-school, elementary, and high school pupils. He finds that "parents tend to be reluctant in allowing responsibilities to pass from parent to child. The data also give some indication that this reluctance tends to continue throughout life unless some special effort is made to modify it". The results of fifteen individuals highly trained in child development indicate that these judges are in favor of allowing children considerable more responsibility than parents deem advisable.

Koch (9) employed the Thurstone technique in the construction of two scales for the measurement of attitudes toward children's freedom. The attitudes of the less educated subjects were more inconsistent and variable than for the more educated groups. In the case of both men and women, the greater the amount of academic education, the more liberal the opinion expressed. Statistically significant differences were found between the scores of 71 subjects known to be stern,

in their attitudes and 40 subjects known to be lenient. Men are slightly less lenient than women. Parents are more stern than children, and teachers are more lenient than either parents or children.

Scales for the measurement of attitudes toward the parental control of children and toward the social adjustments of children have been developed by Stogdill (21, 22, 24). Significant differences were found between the reactions of parents, students and psychologists on these scales. Psychologists endorse freedom for children and approve of extraverted social adjustments. Parents are ambivalent in their attitudes toward children's freedom, as revealed by their responses to individual items. However, when total scores are considered, they are found to endorse strong control. Parents of delinquent children endorse very strong control. Parents also approve of introverted, withdrawing social adjustments in children. College students occupy a neutral position on these scales. Enlightened attitudes toward children are associated with high socio-economic status, special education in social or psychological sciences, favorable home training, and residence in the East or Middle-west; but not with sex, marital status or intelligence.

Fifteen traits to be stressed in rearing children were rated by 37 business-class mothers and by 104 working-class mothers in the Lynd and Lynd (11) study of a typical American city. These same mothers also made estimates as to how their own mothers would probably have rated these traits. "Loyalty to the church" was rated first in importance by the working-class mothers, and for their own mothers. This was rated fourth by the business-class women; but as second in importance for their own mothers. "Strict obedience" was rated as second in importance by all groups except the mothers of the business-class women, for whom it was rated as first. Business-class mothers placed the greatest importance on "Independence", and only slightly lesser importance on "Frankness in dealing with others". Working-class mothers, however, were more concerned with "Good manners", "Economy in money matters", "Getting good grades in school" and "Desire to make a name in the world". Although "Knowledge of sex hygiene" is rated as of minor importance by both groups of mothers, still they regard it as of considerably greater significance than it was regarded by their own mothers.

Stogdill (20) using a scale for the measurement of attitudes toward various forms of parental behavior found that psychologists "regard as relatively more harmful those forms of activity on the part of parents that cause the child to lose confidence in human beings and to feel a lack of security in his environment. Parents, on the other hand, regard as relatively more harmful those forms of parental activity which allow the child a certain degree of aggressiveness, independence and freedom from moral repression".

Jack (8) used a prepared interview form on which to record mothers' answers to questions about the behavior of the child and the practices of the parent. No significant differences were found in the interview scores made at the beginning and at the end of a four months period of parent training.

Ackerley (1) secured responses from 771 parents of elementary school children to information tests and attitude questionnaires on questions of emotional development, mental development, physical growth, sex education, social development, use of money, and vocational guidance. Very few significant differences were found between the responses of fathers and mothers to the test items. "All attitude tests used in this study revealed parental opinions that were outside the range which the experts considered an intelligent attitude."

Attitude scales and knowledge and practice questionnaires were administered by Hedrick (7) to four groups of mothers at the beginning and again at the end of a six weeks training series. Analysis of the initial and final measurements indicates that these mothers made significant gains in attitude, information and practice regarding self-reliance in children in such matters as eating, sleeping,

toileting, and use of money.

Butler (3) constructed scales "for the measurement of pupil attitudes toward the family as an agency for personality development, toward the father's part in the care and upbringing of children, and toward the value of play in the child's development". Responses were obtained from 1586 high school pupils (927 girls and 659 boys). The results indicate that the responses of these students were highly inconsistent, and "that many of their opinions were beyond the range within which competent judges recognize intelligent or mature attitudes". Significant changes in attitude toward self-reliance were brought about by a course of training on this subject.

Witmer (27) studied the attitudes and practices of 600 mothers toward sex education of children. Each mother was given two questionnaires: (a) an Attitude Questionnaire on which to indicate her attitudes toward sex education of children, and (b) a Behavior Questionnaire on which to indicate the extent of the sex education of her children and the source from which such information was received. In addition, each mother was interviewed, and an estimate was made by the interviewer (a) as to the mother's attitudes toward sex education, and (b) as to her practices regarding the sex education of her own children. The correlation between the mothers' attitude scores and the estimate of their attitudes made by trained interviewers was 0.84. When mothers' attitude scores were correlated with their behavior scores the correlation coefficients ranged from 0.30 to 0.53. It was found that differences in opinions cannot be accounted for on the basis of age, religion, nationality, or community in which these mothers were reared. Education, husbands' occupations, types of houses in which they live, all socio-economic indexes, do account to some degree for differences in opinions.

By means of a questionnaire, Rice (15) found that of 83 college men and 130 college women students, 63 men and 113 women confessed to having daydreams of marriage, while 61 men and 99 women reported having daydreams of children. Of those expressing a desire for children, 52.6% of the men and 45.2% of the women wanted three children or less. On the basis of comments made, the author concludes that the results "indicate a general, intelligent, and wholesome anticipatory interest in their prospective families on the part of the subjects".

Hall and Mohr (6) report an interview study of 66 expectant mothers awaiting the births of their first children. Although pregnancy had not been planned in two-thirds of these cases, all but one-sixth of the expectant mothers were reconciled to the condition. Financial and marital worries, and superstitious fears concerning heredity and marking were mentioned most frequently as causes of feelings of uncertainty regarding their pregnancies and the welfare of their expected children.

A rating scale was developed by Fitz-Simons (4) for the purpose of classifying clinical case records according to the parent's emotional attitude towards his child. In 94 cases studied intensively, analysis of the behavior problems of the children and the attitudes of the parents reveals that the largest number of aggressive behavior reactions (such as disobedience and lying) per child occur in cases where the child is rejected by one or both parents. The largest number of withdrawing reactions (such as daydreaming and shyness) occur in those cases where the mother is over-protective and the father negative.

Among the tests developed by Peters (14) for "measuring the mores" is a set of scales for measuring attitudes toward children. The groups studied include college faculty members, college students, socially elite girls, and coal miners. The groups indicating their attitudes also reported their practices in regard to each item. The mores approved by the groups are, in general, more admirable than the practices reported as occurring in the groups. When these groups registered their approval or disapproval of 500 parent-child scenes in 142 feature films, it was found that the "movies practice restraint from 'bad' parent-child scenes

to a much larger degree than the people of our several social groups practice restraints from corresponding acts.....This means that, in respect to the treatment of children by parents, the movies are distinctly better than life."

SUMMARY

1. Parents are highly conservative in their attitudes toward children. (1, 9, 12, 13, 18, 22). Teachers also are very conservative. (2, 12, 17, 26, 28). These two groups approve of child behavior which makes for smooth running of the household and classroom, but they show little regard for the wholesome personality development of the child.

2. Clinical psychologists approve of an active, extrovert, social adjustment in a child, regardless of the inconvenience to parents or teachers. They regard as undesirable the withdrawing, self-centered reactions of which parents and teachers approve. (2, 18, 22, 26).

3. Parents endorse strict control, while psychologists stress freedom from compulsion. (9, 13, 16, 22).

4. Parents are inconsistent, or ambivalent in certain of their attitudes toward children. (10, 22).

5. Children are somewhat more liberal in their attitudes toward children than parents are (9, 11, 14, 19, 22) and women are slightly more liberal than men. (9, 22).

6. The results of certain of these studies suggest that unwholesome parental attitudes are associated with religious, social and economic conservatism (14, 22), and with educational and socio-economic deprivation. (9, 11, 14, 22, 27).

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AN EXPERIMENT IN THE STUDY OF INDIVIDUAL DEVELOPMENT¹

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In the last fifteen years child development centers have accumulated many records on individual children, chiefly for the purpose of making cross-sectional studies. Such studies do not, admittedly, tell us how the individual develops, or take into consideration the total functioning organism or the integrated personality. If such a study of the "whole child" is to be made, it is evident that we must cast aside the group data formulae, investigate techniques suitable for dealing with data on the individual child, and perhaps develop new techniques of dealing with the qualitative data which must be considered along with the quantitative material.

We have recently experimented with such a study at the Merrill-Palmer School, and should like to present some suggestions which have emerged from it. Since the report of the study is available only in manuscript, an abstract of its contents is given.

This experimental analysis of all the data recorded by the Merrill-Palmer School on a single child, from the time she was 20 months of age till she was 8-1/2 years old was made: (1) primarily, to explore the techniques and values to the field of child development of elaborate studies of individual children; (2) secondarily, to show the adequacies and deficiencies of the Merrill-Palmer records of child development, with a view to future planning.

The material is classified under: An Introduction, describing the methods used in the study of the physical and psychological, eugenic and eutheic data, including the graphical and biographical methods, the chronological chart, and a chart showing relationships in the data, with suggestions to investigators. A chapter on Infancy (11 pp.) with data reported by the mother, and a description of the family and its history. A chapter on the Preschool Period (161 pp.), with an analysis and summary of physical growth and habits and mental growth and personality development, based on records taken during attendance at nursery school. A chapter on the Preadolescent Period (112 pp.), including a similar analysis and summary. A section on Conclusions (5 pp.), both as to methods of synthesizing data on the individual and the adequacy of the records, as revealed by the study, and as to child training and the study of child development; e.g., the study demonstrated a need for child development centers to broaden the age range of the children studied beyond the pre-school period, and to make long-time studies showing which phenomena in one epoch of life may be significant for a subsequent epoch. An Appendix (30 pp.), appraising the child development records of the Merrill-Palmer School in the light of this study.

¹ Adapted from a paper read before the Society for Research in Child Development, Chicago, November 10, 1935.

² From the Merrill-Palmer School, Detroit.

It may be suggested that in thus forsaking the group and turning to a study of the growing, functioning, individual child, we are retrogressing rather than progressing in our science. Does not science deal with the general law, not the specific instance? Did not students of personality frankly turn from the qualitative case study to the quantitative group study, because the former produced no useful generalizations? The reply to this question is not clear, nor does our study answer it.

However, our study does show how many data on an individual child may be combined to show both static pictures at different periods and development through time. It suggests techniques for considering qualitative and quantitative data jointly, and for indicating possible interrelationships in data from different fields. It shows the adequacies and deficiencies of various records for such a study; makes it apparent that records made for the purpose of cross-sectional studies do not necessarily meet the needs of a study focused on the individual child; and shows that if such studies are to be made, a new concept of record-keeping must be developed. It shows also how expensive such studies are when there is a wealth of material to be dealt with, and, if they are to be undertaken, suggests the desirability of combining the energies and resources of several centers, in order that methods may be explored further with a larger number of cases, thus increasing the possibility of discovering the generalizations applicable to individual growth and development.

The child whose records were studied was not one of the oldest of those who had attended the nursery school, but was selected because a new series of personality ratings, which it was thought desirable to study in this connection, had been introduced during her attendance at nursery school. She attended the nursery school the maximum length of time (from 20 months to 5 years of age), and had also continued in touch with the school through attendance at its recreational clubs for graduates of the nursery school, the Merrill-Palmer Camp, and an experimental church school class conducted by staff members. Records of all these groups were available. Records of infancy, now taken on many of the children, were lacking.

Techniques experimented with in the study were: (1) A manuscript, in which the qualitative data are reported completely, and considered with (2) graphs, showing time series of quantitative data, made comparable by adoption of the same time base; (3) charts, including a Life Chart, classified by trait groups, showing ages when certain tendencies first appeared, events in the life of the child, and relevant explanatory data, and Constellation Charts, showing diagrammatically certain assumed interrelationships of the data.

The manuscript, despite its great detail, gives interesting and convincing evidence of the interdependence of traits, both physical and mental, and offers some basis for believing that it will eventually be possible to study the sequential development of traits and the underlying factors influencing the development.

The graphs were of three kinds, that is, those illustrating raw data and such standards as percentiles, those plotted on semilogarithmic paper to show changes in rate of growth, and prediction curves drawn up according to the Courtis formula. Considering the graphs as to their adequacy and interrelationships: The physical measurements, under which heading most of the quantitative data fell, were more satisfactory than were the psychological, for they had been taken more regularly, more frequently, and over a longer period of time. A study of the curves revealed no conspicuous relationships, with the possible exception of skeletal age and certain other physical factors. From a study of the graphs as a whole it appears that in studying the interrelationships of various data, such as sleeping, feeding, emotional disturbances, etc., more progress may be made by measuring fewer children more frequently than a greater number at longer intervals.

The Life Chart, which records the outstanding facts of the manuscript, is a set of four large sheets on which have been printed, chronologically by months of age and in separate columns according to the sort of material under consideration, the events of the child's life and various aspects of her development. It shows, for example, periods of emotional adjustment and maladjustment and the concomitant conditions, and periods of rapid and slow growth. Even thus simplified, the chart is complicated by detail and requires close study. It is successful in showing the early origin and persistence of most personality characteristics, as well as the scanty records in certain areas.

The Constellation Charts represent the least scientific of the methods used. They show interrelationships which may be inferred from the data, are simple to inspect, and strike the imagination with their implications. It is doubtful whether they could be developed into a satisfactory technique unless many cases with comparable material could be studied. Each of the charts has a central core or trait, and by a diagrammatic device the influences in the child's life which may have contributed to the central trait and the results which followed from this trait are shown. Such a chart also shows graphically that effects become causes and reinforce the central trait.

In conclusion, the study suggests the need of a somewhat different type of record-keeping for studies of the individual child than for cross-sectional studies. Records for the study of the individual child demand more frequent observations and measurements, more carefully selected ratings of the standardized type, and more adequate observations of the anecdotal type, taken for the purpose of disclosing trends. There is also a need in such a study for more intimate home records and more reports of how specific situations were handled by the adult.

In general, in this study, gaps in records can be attributed to the fact that data were gathered over a period of years without a plan for study of individual development. It is apparent that if such studies are to be undertaken, records must be planned which will disclose all aspects of growth and can be so studied as to reveal interrelations in these aspects of growth.

THE DEVELOPMENT OF THE PRIMARY DRIVES IN INFANCY

KATHARINE M. BANHAM BRIDGES¹

INTRODUCTION

In the following paper, the writer attempts to put forth a point of view regarding the primary drives or instincts and their ontogenesis during infancy. It is based upon the results of close observation of infant behaviour considered in the light of various current theories presented in the literature. A list of some of the works from which material or suggestions have been drawn is appended at the end of the article. It would be impossible to give a complete set of references both for economy of space and because of the difficulty of tracing the number of casual inferences and indirect sources of information which go to form a composite viewpoint. The writer acknowledges appreciatively, however, all such contributions.

The expression "primary drives" is here used to refer to those mental processes which are ordinarily termed "instincts" or "instinctive tendencies" in the older text-books of psychology. They are response potentialities which are common to the human race and which gradually manifest themselves in the course of individual development. It was previously thought that these behaviour tendencies were inherited. In fact the term "instinct" was often defined as an inherited tendency to behave in a certain general way under specified general conditions. The word was indifferently used to denote either the predisposition to act or the behaviour pattern in which this potential urge manifested itself.

Recent studies of child and animal life have shown how even so-called instinctive behaviour undergoes processes of development and change of form in response to environmental conditions. Birds, for example, have been kept north during the migration season by giving them artificial sun-ray treatment. Thus, the instincts are no longer considered to be inherited as fully matured reaction patterns; they are acquired adaptive responses.

Although many psychologists have come to regard instincts as universal habits rather than innate patterns of response, yet they postulate certain inheritable "urges" or "drives" which determine the formation of these general habits. The writer wishes to suggest, on the basis of infant behaviour studies, that the "drives" themselves are ontogenetically developed.

Thus, the term "primary drive" is adopted to substitute that of "instinct" in this article, in order to avoid the implication of inheritance either of behaviour pattern or tendency. But since instinctive behaviour undergoes a process of orderly development and maturation regardless of wide variations in conditions, the possibility of inherited predispositions to respond is not entirely dismissed. Further study of foetal life, however, may reveal the fact that apparently inherited, general behaviour tendencies are pre-natal acquisitions.

In previous publications, the writer has endeavoured to show how in the course of individual development emotional behaviour seems to resolve itself into definite patterns, by processes of differentiation, integration, and specialization. Instinctive drives were seen to play an important rôle in this patterning. Continued studies of infant behaviour reveal further that these instinctive drives themselves are adaptive responses to common conditions in the environment. They also go through a defining process of individuation and organization, and they appear in characteristic forms at successive age-levels during early childhood.

In emotional behaviour the individual undergoes processes of self-modification and internal adjustment in response to overwhelming external conditions; whereas

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in instinctive behaviour the adapting organism makes attempts to modify the environment to accord with internal conditions.

The "primary drives" are response tendencies acquired in relation to common qualities of ordinary recurring situations. They manifest themselves in general patterns of behaviour, which include such specific skills as biting, hitting, pulling or running. And they follow the same laws of growth, maturation, and individuation as do these specialized activities. The ordinary names of the different instincts refer variously to the type of provoking situation, the nature of the behaviour, or the inferred probable goal of activity. For instance, the hunger instinct takes its name from the stimulating circumstance of gastric muscular contraction, pugnacity refers to aggressive behaviour, while escape is the goal of another instinctive response. Possibly the use of the term "drive" instead of "instinct" in psychology might result in a more systematic naming of these action tendencies, according to the form of the behaviour trend rather than the provocative cause or the end result.

The objectives of instinctive behaviour, for instance personal security or retaliation, provide powerful motives both for intellectual and motor activity. But these goals are not necessarily predetermined. They are rather the effective end-results of previous neuro-muscular activity. Protection of the young, for example, is not a determining cause of maternal behaviour, but rather an end observable from outside. The individual may or may not be fully conscious of the goal or purpose of his instinctive behaviour. He is aware usually of an indefinite "urge" accompanying his behaviour "set" or actual activity in response to certain frequently recurring common attributes of environmental conditions.

Any acquired habit is a "drive" to some extent, a potentiality to act in a certain way under appropriate stimulation. The distinguishing features of the habits grouped as "instincts" are their universality, their primacy in ontogenetic development, and their potency as drives. This potency is determined by continued internal stimulation from organic activity, by the repeated occurrence of common factors in all environmental conditions, by the totality of the organismic response, by the satisfying adequacy of the resulting effect of previous similar behaviour, and by the early establishment of these general behaviour trends in childhood.

The general conditions, or qualifying attributes, of the environment which arouse these primary drives can be found upon analytical examination of the total situation to which the individual is responding, including both internal bodily and external conditions. Super-ordinate concept names may then be selected to designate these general types of situation. In a similar way, the final goal of instinctive behaviour is an inferred generalization based on the comparative study of numerous specific reactions. The same processes of abstract analysis and generalization applied to the behaviour itself reveal the common features, the conceptual names for which distinguish the different drives.

OBSERVATIONAL DATA

In order to obtain first-hand information with regard to the nature and development of the primary drives, these dominating forces in human behaviour, a series of minute observations were carried out by the writer in two foundling hospitals in Montreal. In one institution twenty-four infants between the ages of two weeks and twelve months were observed one morning a week for four months. In the other hospital, forty-eight babies between two and eighteen months of age were observed three hours a week at different times of the day, for a period of six months. In this case, there were three children of each monthly age-level under observation.

There were an equal number of boys and girls in each of the two groups. The

babies were all in good health, and they were drawn from eleven different national origins. More than half of the mothers were English-speaking Canadians and the others were chiefly of Jewish nationality, originally from Poland or Russia.

A further series of weekly observations were made on two groups of older children in one of these institutions during a period of three months. One was a group of twenty-five girls between three and six years of age, and the other of thirty boys between four and six years, all in good health. The observational records collected during previous studies of the social and emotional behaviour of infants and pre-school children were also consulted for evidence of the growth of primary drives.

In analyzing the observational data, temporal factors as well as spatial factors in the situations were taken into account. For instance, the length of time since feeding, since sleeping or since the child's posture had been changed, were considered as important as the mere fact of the arrival of food or a strange visitor. The nature of the child's behaviour was studied in relation to the many aspects of the provocative situations and to the achieved ends. Generalizations were then made with regard to situational qualities, frequent behaviour responses, and apparent objectives.

The main criteria accepted for the "primary drives" were: (1) primary in order of genetic appearance of the behaviour pattern; (2) invariability of general type of response upon recurrence of the situation; (3) frequency of occurrence, and duration of the behaviour; (4) universality of the response in all groups of children studied; (5) continuance of the behaviour throughout the age-range observed; (6) and to some extent the dominance of the drive in the presence of counter stimulation.

Since in this study the writer was only concerned with general behaviour trends, actual numbers of specific responses like arm-extension or head-turning were not counted. Only round figures in time and frequency were compared. Also, in applying the criteria the writer was obliged to make certain minor exceptions when qualifying circumstances were present, especially with regard to the criterion of dominance. For instance, the social smile stimulus was a dominating factor over the food stimulus in determining the response of a three-month-old baby who had just been fed. Three to four hours after feeding-time, mere social approach might cause mouth opening for anticipated food instead of a smile. The drive that dominated under certain conditions or at a particular age was found to be subsidiary in importance on another occasion or age-level. Thus, the following statement with regard to the development of the major drives is based upon a general consideration of the infant behaviour observed together with reports and opinions of other writers.

THE ONTOGENESIS OF THE PRIMARY DRIVES

The law of survival operating in the human being takes the form of organismic adaptation both in behaviour and body structure. Processes of growth or expansion and development or differentiation take place until a certain optimum is reached. This is determined by internal and external limiting conditions. Along with the processes of growth and development there is also occurring a gradual synthesizing, an eliminating of parts and retrenching. It seems that during infancy the growth factors are dominant, while in old age the retrenching processes gain the upper hand.

The one basic drive would appear to be that of individual survival, an urge to live as a totality. The earliest responses of the infant are complete bodily reactions to any specific stimulation. The parts of the total response may not be well-organized to meet particular requirements, but the infant reacts as a whole, moving head, hands, body and legs. The new-born child behaves in such a way as to prolong its life and safeguard its integrity. This it does not only by

expansive movements and increased differentiation of response, but also by eliminating unsuitable activity and curtailment of energy expenditure.

There seems to be no need to postulate other basal or original drives in addition to the urge for survival. Jung, for instance, has suggested the existence of a regressive tendency to account for disintegrative mental processes, forgetting and lethargy. Freud, also, has invented a "death instinct" to explain hostility and self-punishment in later childhood. But these phenomena are all forms of defensive behaviour, protective in effect, and can be shown to be expressions of the great impulsion for life.

Patterns of behaviour become established as response tendencies on account of their adaptive value for life. The satisfactory outcome in comprehensive adjustment determines their potency as drives for further action. The accomplishment of this satisfactory adaptation becomes for the individual a part of the total situation-response experience. Upon recurrent stimulation, the memory or sub-conscious expectancy of gratification is then an integral part of the determining situation. Thus, the "idea" of the end becomes the motive for action, and its apparent cause. There is an "object-set" to all the major drives as well as to specific reactions.

Reflexes are developed as part of the more general adaptive responses. Coghill (12) in his studies of foetal behaviour, has shown that a ten-week-old foetus moves body and legs when the eyelid is touched, whereas at birth the response has already become narrowed down to the specific blink reflex. He says "all reflexes emerge as partial or local patterns within an expanding or growing total pattern that normally is from the beginning perfectly integrated." The writer would prefer to substitute "unified" for the word "integrated" in reference to the total foetal response. "Integrated" would apply better to the gradually organized and specialized behaviour of the more highly adapted child or adult.

Reflexes may thus be regarded as pre-natally acquired specific habits, and are but parts of the more general patterns of response called instinctive. Then, the various instincts themselves are particular forms of expression of the biological urge for survival of organismic integrity. It seems that the individual is constantly seeking something outside of itself to complete itself, and giving something out from itself to relieve itself, while temporary states of equilibrium or of suspended activity occur.

General exercise and rest are the first noticeable forms of infant behaviour; and these involve sensory exploration and utilization of the environment. Due to the convenience of circumstances and certain pre-natally acquired reflexes for material intake and elimination, the appetitive drives of breathing and feeding develop immediately after birth. They take on specific form as the result of diminution of useless activity and as they come to have direct reference to the end result which is found by experience to relieve organic tension most satisfactorily. These appetitive drives are determined at first more by internal stimulation through enteroceptors and proprioceptors than externally through the exteroceptors. Later in the infant's development, from the age of two or three months, the sight of food prompts sucking and feeding activity.

Curiosity is a drive which makes its appearance very early, during the first and second month of life. Indeed it may be regarded as the explorative and seeking part of all adaptive activity. The shift of attention of the infant from a distant object to a near-by person and thence to a rattling sound or to his own hand are signs of enquiring curiosity or intelligent versatility. As the infant develops his curiosity becomes specific; he watches people's faces, plays with his toes, peers into boxes and later runs in and out of rooms. Curiosity is like memory, it is an attribute of general intelligence. Yet, just as a person acquires a good memory for this or that type of thing, so an individual may develop strong curiosity or interest in specific materials or subjects of

study. It implies incomplete perceptual grasp of a situation and sufficient previous satisfaction to cause repeated attack or further attentive examination.

The sense of incompleteness of perceptual grasp or comprehension may be due to the fact that the individual's activity is directed to a remoter end than the one attained, involving greater diversity and complexity of behaviour. The older the child or the more intelligent, the more distant his objective, that is the more extensive the experience required to attain it. At any age it would seem that the more intelligent child has greater power of differentiation of sense data. He responds to partial stimuli and is quickly satisfied with the result of each action insofar as it is a step in a total, more inclusive process of comprehension. His liberated attention then turns to another aspect of the perceptual problem. He is inquisitive and curious. Practical exploitation of the environment follows close upon successful exploration, as part of the general process of adaptive growth in behaviour. Again the bright child soon tires of easy solutions and tackles ever more difficult problems leading to remoter ends.

The dull child, on the other hand, is motivated by nearer goals and his behaviour is less versatile. The halo of satisfaction due to some partial success glows, so to speak, over the total behaviour, and he repeats the whole response including mistakes and unnecessary movements over and over again. The dull child, moreover, has a labile attention due to lack of organization of behaviour trends. He turns from one object to another as a result of fortuitous external stimulation. This lability can be distinguished from the alertness of an intelligent child whose attention shifts in a more orderly pattern in pursuit of unified interests. The stereotyped behaviour under slightly differing stimulation of the stupid child may also be contrasted with the varied repetition of the bright one.

Repetition of successful responses involving memory is a feature of all adaptive behaviour. It is an important factor in the establishment of the primary drives and in the development of socialized behaviour. Out of this repetitive tendency in the social situation grows the drive to imitate and mimic. The infant at first repeats his own pleasing activities; mouthing, fist-sucking, finger play and vocalizing. The sight or sound of his own behaviour becomes connected with the specific responses. Later, similar sounds and the sight of others behaving in the same way prompt the infant to respond in like manner. The imitation is by no means perfect at first. Increasing social approval and personal satisfaction determine the gradual perfection of imitative behaviour, while non-effective reactions are slowly eliminated. From eighteen months of age on through the pre-school period and later childhood the tendency to imitate gathers strength, fostered by social pressure and formal education.

In exploring, expanding, searching, the child may pass over or crush things in his way. A successful knock-out blow releases more neuro-muscular energy, which he spends in further exploration or in repetition of the destructive behaviour. In the case of the dull child this quickly achieved simple satisfaction becomes an end in itself, and destructive behaviour may be prolonged over an indefinite period. The intelligent child is less easily satisfied, the destruction for him was merely a way of overcoming an obstacle to his perceptual growth. It may have been only partially successful because the loss or destruction of the object of interest brought disappointment and a further check to his endeavours. On the other hand, along with social approval, it may have created new problems to be solved and opened up new vistas to be thus pleasantly explored. Bed-clothes, for instance, are first fingered curiously and pulled by the three-month-old, kicked by the five-month-old, and pushed away by the seven-month-old that he may examine his toes.

The overcoming of obstructive obstacles is a stepping-stone in behaviour development and comes to be one of the primary drives. The child repeats those surpassing or crushing performances which are successful in part at least in

changing environmental conditions to meet his needs. Pushing the crib bars which confine his movements the infant slides, and sliding makes further exploration possible.

Thus, incidental to discovering new kinesthetic, cutaneous, visual or auditory perceptions, the child learns the advantage of resisting obstructions. A tendency to resist or oppose intervention soon develops, at first directed against obtrusive objects and later against interfering persons. Within a few weeks after birth slight resistance to pressure is offered by head, shoulders and arms. By four months of age an infant will push a little with his feet. And by five or six months he not only presses with hands and feet, but he begins to show some social resistance. Between one and two years of age a strong tendency to contrariness develops. This weapon the child may wield to considerable personal advantage.

By counter attacks, in the social situation, the eighteen-month-old often succeeds in overcoming intervention and achieves his end. For instance, an infant will recapture his toy after hitting the child who took it away from him. He may strike so hard as to cause violent vocal protest and hitting in return, partly through imitation but mostly in opposition. The child then becomes so "intrigued" or attracted by this new-found way of controlling the social situation, that he is deterred from his original objective in favour of "getting-even". Varied exploration leads to the discovery of numerous means of revenge. For example, one foundling infant of sixteen months quietly sat on a much stronger child of about the same age, who kept pushing him over or grabbing whatever he was holding.

The drive to "get-even" is expressive in part of the fundamental tendencies for balance and compensatory action, though it is mainly a social form of the oppositional tendency. Revengeful behaviour is so often successful in obtaining social recognition and control that a powerful "get-even" tendency is common in pre-school children who have developed a strong drive for self-assertion. The latter is generally the result either of continual frustration, or the pleasing flattery of excessive attention. In exaggerated form, then, the vengeful tendency becomes rather a drive to "get more than even" and dominate the situation.

Genetically speaking, the urge for survival shows itself upon birth first as a drive for exploration, for increase and differentiation of sensory experience. Finding obstacles the infant opposes them. In so doing, he discovers further experiential possibilities and satisfying adaptations. Either he overcomes the obstructions or he utilizes them in his progressive growth and adventurous reconnoitering. Each stage in his procedure serves as a basis for the next. Repeating successful performances on subsequent occasions, the child comes to develop a strong utilitarian drive for adaptive exploitation of parts of his environment. The four-month-old baby fingers his dress, the six-month-old pulls and sucks it, while the nine-month-old draws it over his face to shield himself from the gaze of a stranger.

Dropping small objects, tearing paper, and other easy forms of destructive activity are indulged in during the latter half of the first year. Such behaviour usually succeeds in exploiting both the material and social environment at the same time. It is not until about one year of age that constructive performances make their appearance. At this age the infant combines two objects for his use. He rattles a stick in a tin can, scribbles on a hard surface with a pencil, and builds a tower with two blocks. He creates something and becomes aware of himself as the producing agent. Attending to his product he modifies and improves upon it. Thus, the creative urge for construction has its beginnings. It is about this age that the child shows interest in his own excreta. Quite probably he regards them as creative products, comparable to his scribbled lines or block tower.

Returning to the new-born baby again, some experiences may be so intense and overwhelming as to cause emotional shock. Internal visceral adjustments are made, including increased glandular activity. More nervous energy is thereby liberated and many varied patterns of actions are innervated. There results a mutual blocking of motor responses and a temporary suspension of activity. Some general reactions follow, and whatever behaviour serves to reduce the stimulus is the one repeatedly favoured. This is usually a retreating reaction or continued immobility. Thus, a tendency to avoid obnoxious stimuli begins to develop. It makes its appearance almost immediately after birth, as does the tendency to oppose mechanical resistance. Opposing negative reactions and avoidance are both patterns of behaviour involving biologically protective reflexes acquired in the pre-natal period. One of the earliest signs of withdrawal is that from painful stimuli within the first month. Three or four months later the infant turns his head and squirms to avoid glaring lights or being fed unsweetened, lumpy food.

Besides living in a world of inanimate objects, the baby's environment from birth is also a social one including people. Along with food, comfort and warmth, the child is provided with an animated pantomime and social attention. Certain of the infant's reactions result in attracting or prolonging this entertaining attention. These responses tend to be repeated, and the child comes to seek attention. In so doing he influences and partially controls the movements of others. This further advantage results in the development of a strong drive for social recognition.

At first the infant explores tactually, olfactorily, and visually his human contacts like any others. Moving persons as such are singled out by him for special observation within the first few weeks. By two months of age his gaze follows a person's face. At three months he turns his head towards the sound of a human voice; and by four months he coos and kicks delightedly at any social approach. He laughs and smiles in playful response, and cries when the attentive person leaves him.

The five-month-old repeats his own vocalizations and movements; and gradually he discovers himself as the cause of these phenomena. About this time he begins to resist social interference with his activities. He stiffens and thrusts out his foot if it is held, and hesitates in responding to the playful approach of a stranger. He is becoming an autonomous individual; and for the next few months he explores the inanimate world and develops manipulative and locomotive skills, at times quite heedless of the social factors in his surroundings.

Later, between nine and ten months, repeating his own perceived movements and those of others, the infant discovers the social approbation and practical advantages that follow imitation. Mimicking then becomes a pastime and a tool for personal control of social and other events. He echoes sounds in his vocalization, then syllabic speech. And so, from one year onward he rapidly acquires a drive for vocal communication. His social dependence and subservience is again highly noticeable. In a few months' time, however, he recoils from too much social control; and by the age of eighteen months he is the contrary little runaway familiar to all nurseries.

Thus, the social drives develop from aimless exploration to appreciative acquiescence. Then follow definite attention-seeking and social responsiveness around four months of age. Resistance against interference, withdrawal from strangers, and personal assertion develop next, followed by imitation and social coöperation before the age of one year. Preferences for certain individuals later become noticeable, and obstinate social resistance is characteristic behaviour of the two-year-old.

At three years of age the child begins to show powers of social organization. He arranges dramatic play, for instance, with one or two children or a grown-up. In such behaviour his social suggestibility and affability are combined with, and

even subordinate to, a drive for self-assertion. Thus, ascendancy and "leadership" are but outgrowths of the general tendency to exploit and utilize parts of the environment, operating in a social setting.

Further socialization takes place during the pre-school years when the child adapts his own ends to accord with others' wishes; and so in pleasing himself he comes to serve the needs of others. This is the beginning of the drive for social altruism. In one of the foundling hospitals, for instance, during the rest period, a four-year-old boy who was ordinarily rather timid risked the stern reprimand of the attendant by leaving his place to help another boy struggling to fasten his suspenders. He was the last straggler from the wash-room, and the children were not allowed to lie down till they had fastened their buttons.

During the sociable, submissive and imitative one to two-year period, the child does not seem to differentiate clearly as yet between the self and the others. He responds to their situations as well as his own; for instance, he may cry for the other child's hurt, or at a threatening blow directed against his nurse. He treats his doll or his favourite playmate as though they were himself, by patting, feeding, dressing, and so forth. The child apparently identifies himself with familiar persons as a sort of extended ego, and resists the intrusion of strangers.

Between two and three the child's own personality seems to become isolated. He sets himself in opposition to others and shows social independence of conduct. But between three and four years of age the child learns some of the benefits of combined activity and social coöperation in little games of house or storekeeping. Then it is that the growing individual seems to adopt, or co-opt others into temporary groups of two or three. The child's behaviour with the adopted friend would suggest that there is still considerable personal identification. If the playmate is older he is patient and acquiescent in his company; and if younger he helps, teaches and protects him.

Here is the first sign of maternal protectiveness, a drive which may owe part of its strength to this identification of the self with the members of the familiar and friendly social set. Even animals may protect their offspring as part of themselves. It is well-known that as soon as young animals show signs of independent activity, the mother leaves them to take care of themselves and shows little further interest in them.

Not only does the pre-school child identify his best friends with himself, but he also behaves at times as if he were they. As Susan Isaacs has pointed out, he projects or introjects himself into their situation and dramatizes his behaviour accordingly. In so doing he shows clearly that by this age he can differentiate between himself and the other, although his socially functioning ego may include him. One of the most helpful ways of studying the nature and relative strengths of a child's own drives is by watching how he treats his dolls or playmates with whom he identifies himself. He treats them as he is accustomed to be treated, and has them do what he wants to do. In the same way the rôle that he selects to act is expressive of his own drives and ambitions, even if it is merely to squirm along the ground like an alligator.

Less favoured members of the social environment and strangers may have projected upon them the child's own behaviour tendencies which are usually met with reprimand and checks. The child treats them as if they were the "bad" part of himself, and scolds, punishes, or shuns them. Again, observation of the way children behave with regard to those they dislike gives further clue to their own drives and behaviour conflicts. Any person and even the rag-doll may be treated with favour or disfavour at different times, dependent upon recent events which have encouraged, checked, or handicapped the child. He may identify himself in his actions with the constraining authority and scold or impede the other self-surrogate. Or, he may emulate the behaviour of the object of his affection-

ate attachment in flattering pantomime. Here we see among children at so early an age the origin of the social scapegoat and hero.

There is no sex difference noticeable in this self-projection and personal identification in the social behaviour of the child. Boys have their doll attachments, and boss or protect smaller children just as do the girls. Both sexes of infants show a preference for mothers and nurses among the adults, on account of the comforting treatment received from them. In the foundling hospitals the children could not have Oedipus or Electra complexes, as they were always tended by nurses in uniform. The resident physician, also in a white coat, would only visit the infants occasionally. The nurses no doubt showed preferential treatment towards the babies, according to their temperaments, and some received more attention than others. But every child was the favourite or special care of somebody.

Sex differences in behaviour and preference for companions are mainly socially determined. The behaviour and remarks of adults versed in local traditions influence and encourage certain types of comportment among the children. This influence is greater in some family circles than others, and may begin to operate during the socially suggestible one to two-year age period. Sex attachments, however, are of secondary and minor importance to the general personal-utility motive of the growing child. The sex instinct, so-called, can hardly be regarded as a primary drive in early childhood, for it does not show signs of being a dominant motive force in behaviour till around the age of puberty, or even later.

It is generally agreed that boys are on the whole more boisterous in their play activities than girls. In a pre-school group girls may be seen to play together, drawn by common interests in less energetic games. Bigger boys may show solicitation and considerate attention towards the smaller girls. But this is probably because the younger girls in a nursery group are apt to be the weaker members most requiring assistance. If the smallest in the group happen to be little boys, they receive similar care and consideration. The same protective drive operates in both sexes. Though, when it is manifested by boys it is often taken for sexual interest, and, as expressed by girls it is called maternal instinct.

Just as in primitive races the women, the slaves and the "underdogs" show the most compassion towards one another, so in a group of pre-school children, the girls and the more delicate boys are apt to show greater sympathy and kindness in their behaviour. Again this is not an original sex difference but rather a matter of relative strength of constitution and difference in experience. Robust girls may be very bossy and rough in their protective behaviour. Children who are often ill may understand better the suffering of others. But, on account of their weakness and the pleasant pampering they generally receive, they are apt to be exacting in their social demands and indifferent to the needs of others.

Maturing infants in their gradual discovery of the world about them in their exploitation of its possibilities to facilitate living, become slowly aware of themselves in action as causal agents. In waving their arms and sucking their fists they see and feel their hands. Later they hear their own voices and find their toes. Different local motor functions develop at more or less definite regular stages during the first two years of an infant's life. Gesell and Bühler, among others, have charted these phases of maturation very carefully; and have shown how such orderly development of behaviour depends on the effect of gravity, position, contact stimuli, light, sound, and internal organic stimulation.

The attentive interest and primary drives of the infant, therefore, concern certain types of object and forms of motor activity at different age levels in conformity with this process of maturation. The one-month-old baby sucks his fist and gazes at distant objects, the three-month-old plays with his hands, the four-month-old laughs and kicks on social stimulation, and so forth. Psychoanalysts

have suggested that children go through phases of oral eroticism, then anal eroticism and narcissism in the course of their instinctive or "libidinal" development. Certainly children mouth and suck objects continually during the first ten months of their lives. But this is only one mode of their activity in exploring the environment. Lips are well supplied with tactile end-organs, and all parts of the feeding process are associated with the gratification of hunger. These actions, moreover, are often repeated.

Later, between one and two years of age usually, when the child is less developed in clothing, he becomes aware of his own eliminative processes. At the same time he is being socially trained. His attention is drawn to the eliminative functions; and he discovers more of his own creative powers and means of exploiting the environment, for example, by incontinence or retention. Besides appreciating the newly differentiated sensations and perceptions, the infant quickly learns to utilize these additional methods of attracting other's attention and making the social environment respond to his bidding. This phase gradually passes when the child runs about and discovers ever further and further possibilities.

The egotistical and often stubborn two or three-year-old is very busy exploiting his own capacities as a creative and controlling agent. He may be said to be narcissistic; he may be even called auto-erotic and auto-sexual, for often about this time he explores and manipulates his own genitalia. But these terms only refer to a limited aspect of the child's development at this period. Despite his self-absorption and obstinacy, he is very socially dependent and sensitive. He displays his productive play achievements continually for attention and approval. He mimics speech and manners, and takes especial delight in hitting, dragging things, and making a noise.

To talk of certain "erotic" phases in infancy, namely the oral, anal, and auto-erotic, as if these were fundamental drives expressed later in many specific forms of behaviour, seems to be rather misleading. Comparative studies of infants show that orally directed attention and behaviour is only one aspect of the adaptive activity of the human organism. One might just as well speak of the "arm-eroticism" of the four-month-old during the period of gesticulating and abortive attempts at grasping. One might equally well prefer to the babbling of the seven-month-old as "ear eroticism" or "vocal eroticism". The same argument would apply to the exaggeration of the importance of certain other aspects of infant learning in the extensive application of such expressions as "anal erotic" and "auto erotic".

To be sure, an obstinate child, one in conflict with his social environment, may utilize his power to withhold the evacuation of faeces as a means of controlling the authorities in charge of him. But he will also refuse to take off his shoes, follow the offending adult when out for a walk, or eat his food at mealtime. "Anal fixation", so-called, may well be an expression of obstinacy and thus a symptom of social maladjustment. But it can hardly be said to be the primary cause of the latter. Emotional disturbance, due to social conflict and inhibition of action, may produce such temporary functional disorders as constipation or diarrhoea, according to immediate conditions and the physiological constitution of the child. These can become fixated as habits depending upon recurrence of circumstances and the usefulness of the purpose served. They are not primary motives but specific aspects of social and personal adjustment to physiological and climatic conditions and local conveniences.

The psychoanalytic term "fixation" is a concept of general significance which can be applied to the establishment of certain strong habits or stereotypes. Dependent upon favourable accruing results, upon the recurrence of situations, lack of discrimination, and inability to explore further in a certain direction, a child may develop a repetitive tendency for some particular behaviour form, such as scattering toys about or chewing the paint off them. Stereotyped behav-

ious or habit fixations are often indicative of extreme conflict and opposition, or lack of native capacity to explore and adjust. They may also, however, be personally satisfying adjustments to relatively unchanging circumstances. The highly intelligent child cannot repeat indefinitely. Other interests, held in abeyance by the one activity, divert the child's attention and modify his reaction. Neurotic, emotional children, mostly under social stress, and the intellectually dull children go on repeating inadequate attacks upon a problem. In so doing they learn by hard knocks to differentiate, and they gather additional emotional energy to strive, to explore further and develop. Intelligent neurotics show little variations in their behaviour within a general pattern, while the stupid child's stereotypes are inflexible and specific.

Biting, which is quite a common reaction of two and three-year-olds, is regarded by psychoanalysts as expressive of the second oral phase of a child's instinctive development. He derives pleasure from biting rather than sucking, and may even bite his companions. This is taken to be a hostile social reaction and indicative of a fundamental motive of hostility. Freud, moreover, proposes the existence of a "death instinct" towards self-annihilation to account for this hostile motive. The "death wish" is projected outward on to some surrogate object or person, whom the child treats in an aggressive and antagonistic manner.

Close observation of infant and pre-school behaviour, however, suggests that biting on the part of a baby under a year may be a friendly act. It is but a variation of his generally appreciative exploration, in which he pokes, pulls, licks or tears attractive objects. Biting other people may prove to be an effective way of ordering the environment to further immediate ends, until deterred by severe social disapprobation. As mentioned previously, the two to three-year-old is passing through a socially refractory age, and he may hit upon biting as a temporary measure for getting his own way. One sixteen-month-old infant in the hospital bit and pulled the hair of another the same age, who repeatedly took his toys.

Pugnacity or aggressiveness is a strongly developed tendency towards social opposition, probably largely based upon early frustration of activity. It also depends upon robustness of health, muscular energy, and limitation in variety of interests. During the process of social training, it is quite possible that a child may become disappointed in his own conduct and ability to conform to adult standards. His disagreeable behaviour offends others and in so doing it thwarts his own socially determined ambitions. He hits out, consequently, in opposition to the restraining authority and also against himself whom he introjects into the other person. A child's hostile behaviour may thus sometimes be an expression of self-criticism. He "punishes" both himself and the other offending person in imitation of adult teaching methods.

In civilized countries, where there is much social discipline and formal education, children may develop a "sense of guilt", to use a psychoanalytic term, beginning about the pre-school period. It is an awareness of an internal conflict between drives for personal gratification and the avoidance of social disapproval. A frequent solution of this conflict is in actual or phantasied self-punishment. By punishing or depriving himself of enjoyment the child incidentally becomes the emulated authority, while he continues to get satisfaction from his "guilty" or naughty behaviour.

Hostile behaviour, whether directed outward upon the community or against the self, is always an expression of the primary tendency to oppose frustration. It is determined by the primal urge for individual growth and survival. The recent psychoanalytic theory, on the contrary, holds that there is an original "death instinct", a drive for self-annihilation which manifests itself through the "punishment phantasy" and in all hostile behaviour. Antagonistic reactions are all supposed to be directed against the self masquerading in the other person. This seems to the writer to be a complete reversal of the order of things.

Pugnacious behaviour is a sign of life; and any partially gratifying phantasy there may be accompanying it is rather that of death or destruction of the offender.

Even suicidal behaviour may be explained as an extravagant, and incidentally inadequate, expression of the life impulse. Firstly, it is most common during adolescence when the urge for living is strong and when social adaptations are still in the process of formation. The youth in his growing ambition identifies himself idealistically with the social group and adopts its standards of conduct. Childish behaviour tendencies assert themselves, impeding his progress. His glands are active, and he works up an emotional fury against the tiresome and tabooed tendencies in himself. Then, he may do violence to himself in angry revenge, and at the same time to force the attention of the social world upon such an awkward and apparently insignificant person.

Other cases of self-destruction may be partly defensive in aim. An individual may be so shocked and overwhelmed by difficulties, material and social, as to be emotionally inhibited in his behaviour. He reacts by recoiling from social influence; and suicide may be an ultimate retreat from danger. Again, this is a paradoxical manifestation of the drive for self-protection and individual survival.

Any of the numerous forms of "masochistic" behavior, self-sacrifice and abnegation can be shown similarly to be specific expressions of the life impulse. They are kinds of social adaptation in which the individual identifies himself with the group, the ideal "cause", or the person inflicting injury. The drive for expansive growth and for safe protection is manifested by parents in patient care of their offspring, their newer selves. Even the motherly little four-year-old, who suffers deprivation of her toys and painful slaps from the younger child in her charge, is gaining adaptive control of the situation. In serving temporarily she insures dependence of the little one and greater power of dominance for herself. At the same time she fondly enjoys the indulgent freedom and vigilant protection accorded to the younger child as if it were for herself.

Acts of retention seem at first to be rest pauses in the struggle for continued existence. The child holds on to the objective obtained before striving and exploring beyond. This may be just a stopping place, such as one step in a flight of stairs, or an actual toy object that the child coveted. Under one year of age babies rarely cling to anything for more than a few minutes. But the runabout child, between one and two and a half years, holds tenaciously to his toy animal and defends it from all claimants. Such strong possessiveness is determined in part by a conservative tendency to remain in a satisfactory position and avoid undue expenditure of energy; but it is also an expression of the drive for balance and personal integrity. The rest allows other interests to come into force and direct behaviour; and processes of organization and action planning or thought go on during this time.

Furthermore, the anthropomorphic infant seems to introject himself into the object of his choice. He apparently regards it either as a replica of himself or as an appendage; and for this reason he guards it as vigorously as he would defend himself. The year-old child is learning to use objects as tools. A stick is useful as the prolongation of an arm. So here is another factor in possessiveness, the clinging to any means of extending the possibilities of exploiting the environment. Playmates or friendly grown persons may be annexed and utilized in the same way.

Collecting small objects is a behaviour trend which makes its appearance usually during the pre-school years, and is doubtless another manifestation of ego-expansion and the drive to control the environment. It was noticed in one founding hospital, where the children under two years of age had a variety of play-things, that the younger ones sought objects of any kind chiefly for their mani-

pulative potentialities. The older ones selected and clung to objects with pleasant familiar associations, things that were of "historical" value to them. Thus, acquisitive behaviour might be regarded as a manifestation of the drive to preserve personal integrity and continuity, in holding the past to the present for future development.

In the other foundling hospital, observations were made on the behaviour of a group of three to six-year-old children, devoid of play materials, when leaves torn from a book were scattered among them. All the children tried to claim as many as they could, and several struggled or fought for possession. After a few minutes an optimum balance was reached. The more persistent and the older had the larger collections. Then the children treated the material according to the relative strengths of their more individual drives, and their general maturity level. Some put the papers in a heap and sat on them. Some tore them into little pieces. Others spread them on benches with edges touching together; and one or two pretended to read from the pages in mimic pantomime of adults.

Similar behaviour was shown on another occasion when handfuls of rags were distributed. The smaller children held the bundles firmly in their hands and carried them about. Some tied pieces together into long strings. One made a skipping rope, two made crowns, and two others belts. Some sat and smoothed out the material; while the oldest dressed herself in pieces knotted together.

According to Charlotte Bühler's observations, pre-school children under six collect any sort of material merely for possession. From seven years onwards they collect things which can be put to practical purposes, and the collections of adolescents are made for ideal ends. At each stage the objects are first chosen for their subjective value and later for more objective and social value. The writer, however, found infants amassing small objects even under the age of two years; while grasping one or two single objects is a common reaction after the age of six months. Some degree of selection was evidenced in the very earliest collections, depending apparently upon portability, brightness of colour, sound-producing properties, and general manipulative possibilities. Sometimes the behaviour of the three-year-olds towards their temporary possessions suggested that they had some symbolical representational value, signifying a person or a whole social event. At other times the objects were exploited as tools or building materials, use often being found for them after they were collected.

In the foundling hospital experiment, the children who hoarded or merely clung to their materials were the younger or the relatively quiet and inactive ones of the pre-school group. The older and the more lively investigated the possibilities of their new possessions and put them to use. Timid children were afraid to display their pieces of stuff for fear of having them taken. Conservative behaviour may thus be an outcome of relative weakness and a sense of insecurity. The lack of drive involved may also be due to mental dullness and inflexibility and to temporary satisfaction in the attainment of an immediate end.

Both in their exploration of the inanimate world and in their social reactions, the foundling children manifested waves of expansiveness followed by periods of retirement and self-absorption or active independence. The three-month-old became increasingly interested both in things that moved and in people. The seven-month-old manipulated objects but showed less interest in people. The eleven-month-old sought company again and was socially suggestible; while the eighteen-month-old would run away from the group or escape from the room, when possible, to investigate beyond.

Inhibited, shy behaviour, with bent head and averted gaze was acquired by some children during one of the socially resistant phases, that is, around seven, eighteen or thirty months of age; and it was preserved as a means of holding attention during the periods of greater sociability. Such bashfulness appeared to be an attempt at adjustment to satisfy two somewhat incompatible drives: that

for special attention fostered by social dependence, and the contrary drive to dominate rather than be controlled by the social environment. This awkward, shy behaviour was gradually modified as it proved to be inconvenient or even a social handicap.

In the case of highly suggestible children of pre-school age, retirement to a corner or bashful immobility seemed to be less a desire for attention than a conservative, defensive reaction against undue social stimulation and exploitation. In fact, it was a simple avoidance response to escape attention and reduce the overwhelming social influence. The same sensitive children were less shy in a small group of five or six than in larger groups of twenty or thirty.

The drives of universal importance in motivating behaviour developed in varying amounts of strength in different children. Although "physical energy," organic functioning, and native learning capacities had much to do with this; yet fortuitous arrangement of circumstances and the recurrence of events were seen to be powerful determining factors. One rosy-cheeked boy, who was a favourite among the nurses, had more practice than others in learning to walk and speak and operate the rocking chair. He developed a strong drive for domination both of the hospital attendants and the other children. He was persistently aggressive when thwarted, and by the age of eighteen months he succeeded in damaging several pieces of furniture through bumping it with his rocker.

Other children, due to their own peculiar circumstances, developed a cautiousness in behaviour, hesitating and retreating from the slightest difficulty. Certain children were acquisitive and grasping, possibly because of some unexpected or intense satisfaction thus derived. Moreover, the strength of a drive, such as that for possession, for social seclusion, or for leadership, was found upon analytical study to be due very often to "over-determination". The behaviour served several purposes and was the outcome of the amalgamation of two or more primary impulses.

Some of the more powerful drives developed during infancy showed periods of recurrent dominance in childhood. For example, sociability, contrariness, aggression, altruistic kindness and conservative possessiveness showed recurrent waves of dominance; but each time the behaviour took a slightly different form and had reference to different classes of objects or specific persons. Such periodic variations did not appear quite at the same age-levels for all children, although there was considerable correspondence. They could no doubt be accounted for by factors of general growth and maturation, organic and climatic changes, health, social customs, and the primary urge for balance and integrity. In all probability, recurrence in the dominant strength of certain drives might be traced throughout the whole life span.

The same order in development of the more specific behaviour tendencies was not followed invariably by all the infants under observation, due to experiential differences. But again, there was much similarity which could be attributed to the known orderliness of maturation during the first two years, and to the homogeneity in all children's environments. Only the fundamental urge for living is the same for every child. The adaptive forms in which it expresses itself must perforce vary with individual experience.

CONCLUSION

Primo vivere. The human organism's first and most fundamental behaviour drive is to extend and prolong its life and to preserve its individual integrity. This involves sensory discrimination and differentiation of response so as to effect environmental adaptation. Such reactions begin even before birth. Growth and useful coördination of response take place concurrently. But, according to the environmental conditions encountered, these adaptive reactions take various forms.

The infant at birth shows a tendency towards expansive exploration among mild and slowly changing stimulus patterns. He has already, also, a tendency to arrestation of movement upon sudden extensive change or intense sensory impact. Accumulated experience makes of this reaction a drive to avoid the obnoxious and whatever threatens personal security.

Explorative curiosity grows apace in all sensory fields during the first few weeks, from scents and surfaces to persons, small objects and voices. Integrative perception and manipulative exploitation are going on at the same time.

Physiological rhythms and appetitive intake and excretion are productive of the fundamental drives for functional balance, for breathing, feeding, eliminating, exercise and repose. Postural adjustment to gravity, based again upon muscle elasticity and reciprocal action, is the earliest form of a general tendency to compensatory reactions. This shows later in swaying movements, artistic symmetry in construction, and in moral judgment.

Obstacles to infant activity are met with resistance. This opposing reaction develops into negativism or contrariness at frustration in the social situation. Augmented by assertiveness it becomes aggression. Counter-attacks lead to the development of a tendency to revenge or "get-even."

Advantageous rest pauses between explorations, or attacks on problems, result in the establishment of a conservative tendency to retain hold. Objects first actively grasped, then conservatively held, come to be amassed as possessions. These are utilized mechanically; or they are given symbolic significance at least by the pre-school age, and treated dramatically as human surrogates. Acquisitiveness and possessiveness added to social antagonism can become stealing and hoarding.

Repetition of successfully adaptive behaviour in recurrent situations develops into imitation in the social setting. The tendency to imitate together with alternating assertion and submission constitute the drive for amicable social reciprocity.

Acquiescent social behaviour or submissiveness is based upon associated drives for appetite gratification and security, together with the growth drive for self-expansion. Assertiveness is at once an expression of the tendency to compensatory behaviour in a social situation in order to preserve individual independence of action, and a form of exploitation of the social environment. Altruistic behaviour develops from a useful combination of submissiveness and assertion; while maternal protective behaviour is a later development of self-protection through personal identification.

All of the above-mentioned fundamental drives develop within the first two years, excepting social altruism and protectiveness which are usually acquired between the third and fourth year. The primary drives become further differentiated and directed towards varying specific ends with increasing age. Combinations also continue to occur, the same objective serving as a goal and means of gratification for several basic drives. Sexual attractions and impulses complicate social behaviour during later childhood and adolescence, increasing the strength and specificity of social responses. Then follows the urge to propagate stimulated partly by increased genital activity, and expressing in yet another form the search for means of extending and prolonging life. Innumerable individual variations develop both in behaviour-form and object-set of the derived drives; but these all have their bases in the general adaptive responses acquired in the first and second year of life.

Appended below is a schematic outline, indicating the sequence of development of the primary drives from birth to the end of the pre-school period of childhood.

SCHEMATIC OUTLINE OF THE ONTOGENESIS OF THE PRIMARY DRIVES

Before Birth

The original, fundamental drive for individual survival operates through harmonious and economic adaption, involving principles of growth, differentiation, conservation, balance, elimination or reduction, and coordination.

Birth to One Month

General and special behaviour tendencies relative to environmental conditions evolve in a more or less definite order. Rhythmic exercise and rest, appetitive drives of breathing and feeding, sensory exploration, counter-action and compensation, avoidance, and utilization or exploitation all develop during the first month.

One to Three Months

Before the third month drives for tactual, visual and auditory curiosity, manipulation, postural adjustment, and sociability develop.

Three to Six Months

Tendencies towards acquisition, vocalization, assertion, shy retreat, and social submission make their appearance.

Six to Twelve Months

Drives for hostile aggression, imitation, destruction, and possession develop.

Twelve to Twenty-four Months

The drives for locomotion, creative construction, vocal communication, obstinate resistance, revenge, flight, and social compassion become evolved.

Two to Five Years

During the pre-school period tendencies towards social simulation and dissimulation develop involving processes of introjection and projection. Rivalry, collecting, protectiveness, and an urge for justice also make their appearance.

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AN ANTHROPOMETRIC MEASURING BOARD

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The growth process of a human being is still an interesting field of research. Of recent years many studies have appeared dealing with various anthropometric measurements of children and young adolescents. Since no standard apparatus has been introduced for taking some of these measurements, it is frequently left to the resourcefulness of the investigator to construct his own equipment.

The writer was confronted with the problem of measuring a large number of boys in various institutions. The equipment necessary for this work would have to be portable and easily movable after being set up. Among the measurements desired were standing height, shoulder height, leg length, sitting height, span, length of foot and width of foot. Previous experience with the conventional measuring rods had shown how hard it was to keep the measuring rod at a right angle to the floor when taking such measurements as shoulder height and leg length. Furthermore, youngsters had a tendency to pull a shoulder up or to drop it while being measured. Likewise, a shifting of weight from one foot to the other was noticed while taking leg length. To overcome some of these difficulties a measuring board was designed to supplement the use of a Todd Tubular Measuring Rod.

The main purposes of the measuring board then were to assure uniform conditions under which each boy would be measured and to facilitate handling the metal measuring rod so that it would always be at a right angle to the standing plane of the subject.

The complete board stood seven feet high and twenty inches wide. The base board was four feet long and twenty inches wide. The whole was so constructed that it could be taken apart by removing ten screws and transported on the running board of an automobile. The vertical piece was at an exact right angle to the horizontal base. The whole board was mounted on rubber rollers which facilitated handling and storing while working in the field.

Glued to the vertical section of the measuring board was a strip of unshrinkable metric tape, marked off in centimeters and millimeters. In the vertical section there were three equi-distant lipped grooves three-quarters of an inch deep and four inches wide running the whole length. The center groove acted as a guide for a wooden right-angle triangle, eight inches by eight inches. This was used for taking standing height and sitting height. The lower surface of this triangle was fitted with a metal edge one-sixteenth of an inch thick. The purpose of the metal edge was to assure taking the measurements from the scalp of boys who had heavy, curly hair. The operation of this triangle is shown in Figures 1 and 2.

The two outer grooves of the vertical board acted as guides for a much larger right angle triangle which fitted down over the shoulders of the boys and was used in taking shoulder height. The operation of this piece is shown in Figure 3. It was found to be a great help in keeping the shoulders in their natural position while taking this measurement.

It may be added that both triangles described above fitted into their grooves snugly so that there was no give in any direction and further they were exactly parallel to the standing plane of the subjects.

Fastened to the base board and to one of the vertical supports on the left side of the measuring board were two slots with holes drilled the exact size of the measuring rod. Into these were inserted the first section of a Todd Tubular Measuring Rod. This arrangement was used in taking leg length and its operation is illustrated in Figure 4. When not in use the additional section

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Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

PLATE 1

of the measuring rod could be taken off as shown in Figure 1 and 2, or pushed to the side as shown in Figure 3. This arrangement always assured the investigator that the measuring rod was at a right angle to the standing plane of the subject. He could then concentrate his attention on the actual taking of the measurement.

The box used for taking sitting height had three dimensions for its height, breadth and length, namely 25 centimeters, 30 centimeters and 40 centimeters respectively. This allowed for a different size box when measuring boys of marked difference in height. See Figure 2.

In constructing the Spanning Board the general recommendations given by Hrdlička were observed (1). A lip was planed into a smooth piece of white pine, seven feet long, four inches wide and three-quarters of an inch thick. The piece was then sawed in half and the two halves hinged together. A smaller piece of wood was then screwed to the lower edge (just visible along side the boy's left ear in Figure 5) and over-lapped the hinge by about twelve inches on each side. This rendered the board about as rigid as it was before it was cut, and besides, upon removal of the smaller strip, it could be folded in half and conveniently transported. An unshrinkable metric scale was then glued to this board and afterwards shellaced. An ordinary draftsman T-square which slid along the groove in the top of the board gave convenient readings of span. Its operation is shown in Figure 5. While in use one end of the board was fastened at a moderate height to a door frame and the other end was supported by a wooden brace not shown in the picture. The length of the T-square made the board adaptable for both short and tall boys. The boys were asked to stretch their arms as far as possible and as they did the T-square was pushed back until the full extent of the boy's span was reached.

In Figure 3 there is seen hanging at the left side of the board opposite the subject's shoulder, a common foot rule used in most shoe stores for determining the size of shoe needed for a prospective customer. A metric tape was glued to the surface of the rule and then the whole was given a coat of shellac. This instrument was used for taking length of foot and width of foot.

The total cost of this whole set-up (minus the cost of the measuring rod) was a little less than seven dollars.

In order to determine the magnitude of the error of observation the measurements on thirty boys were duplicated on successive days, five boys from each preceding day being selected for re-test. The following average differences were thus obtained.

Standing Height.....	Mean Diff.	0.32cm.	±0.16
Shoulder Height.....	" "	0.57cm.	±0.37
Leg Length.....	" "	0.25cm.	±0.14
Span.....	" "	0.31cm.	±0.25

Besides being a great help to the accuracy of the measurements, the measuring board had the further advantages of being convenient, economical and portable.

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PHYSICAL PROPORTIONS OF THE HUMAN INFANT

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INTRODUCTION

The different parts of the human body are often somewhat disproportionate in size. The tallest individuals are not always heaviest; those with longest legs do not always have longest trunks, and persons with widest hips may not have widest shoulders. When groups of individuals are measured, the lack of proportionality of different size measurements is often very noticeable.

Nevertheless, the different segments of the same human body do fit together, usually more or less harmoniously, to produce a whole human being with some symmetry and regularity of features. Since the parts must fit together, the different bones cannot vary in size with complete independence. Certain parts must agree in size more closely than others. For example, a person can hardly have a very long ulna and a very short radius; he can, however, have long fingers and short bones in the forearm. Some sets of bones must agree in length and width, but they could conceivably vary quite independently of many other sets of bones.

Since mechanical factors favor proportionality, and disproportion is prevalent, it appears likely that some factors favor independence of variation. Hence it seems desirable to examine the facts of agreement and disagreement. For a first analytic study of interrelationships, we have selected some published data based upon measurements of new-born babies. The correlations between such measurements are examined here in an attempt to discover trends. In the course of this procedure, we have employed multiple factor analysis as a useful technique for discovering trends and summarizing complicated collections of facts. This analytic treatment of the material directs attention to certain aspects which deserve more emphasis than they have usually received.

THE DATA

The data used in the present analysis are the correlations published by Bakwin and Bakwin (2). Those investigators made careful measurements of various dimensions of new-born babies, and they presented two tables of correlations. The first showed the intercorrelations between all possible pairs from among 18 external dimensions of 608 male new-borns. The second showed the same sort of intercorrelation figures obtained from measurements of 609 female new-borns. These data summarize certain facts about a very large body of anthropometric material, laboriously collected. The material is especially suited for the type of analysis intended here, since the number of variables is relatively large, the correlations are based upon large populations, and two separate intercorrelation tables permit comparative treatment, with consequent evidence concerning the consistency of findings.

The 18 measurements which were intercorrelated are discussed by Bakwin and Bakwin (1) in an earlier paper in which the method of taking the measurements is described. The reader will see by referring to our Table 1 that these measures include gross bodily dimensions, body weight, and various facial details. Some of these measurements are obviously composites, while others are measures of size of individual bones. It will be instructive to consider here in some detail the various amounts of agreement exhibited when such an array of variables is studied comparatively.

¹ From the Institute of Child Welfare, University of California. The writers are indebted to Dr. H. S. Conrad, Dr. H. E. Jones, Dr. H. R. Stolz, and Dr. Nancy Bayley, who read and criticised the manuscript.

GENERAL CONSIDERATIONS

In order to save space, the large tables of intercorrelations published by Bakwin and Bakwin (2) are not reproduced here. It is our intention, instead, to present some smaller arrays of figures, which summarize certain facts arrived at through study of those larger tabulations. We shall first point out some important features of the larger mass of data.

The values in the tables of intercorrelations are all positive, indicating a general tendency toward proportionality of all bodily measurements. The longer babies tend not only to be heavier, but also to have wider shoulders, wider hips, longer noses, wider ears, and so forth. The agreement extends to the comparisons of even the most diverse details. It would apparently be impossible to find two bodily dimensions which correlate negatively; among these 18, there are none which even correlate zero.

Certain selected and significant facts concerning these interrelationships have been presented in our Tables 1 and 2. For each variable, the value of the highest correlation coefficient is given and the paired variable is identified.

Table 1

Highest, Average, and Lowest Intercorrelation Values, for Each of 18 Variables, From Bakwin and Bakwin, Table 5. Data from 608 Male New-Born Babies.

Variable	Highest Correlation	Av. r	Lowest Correlation
Total Length	.69 (Sitting Height)	.39	.16 (Height of Nose)
Sitting Height	.70 (Weight)	.38	.14 (Height of Nose)
Bimalar Diameter of Face	.65 (Circumf. of Thorax)	.46	.32 (Height of Nose)
Upper Facial Height	.54 (Height of Nose)	.38	.25 (Inter-Inner Canthus)
Height of Lower Jaw	.37 (Biacromial Diameter)	.30	.19 (Bi-Iliac Diameter)
Height of Nose	.54 (Upper Facial Height)	.36	.14 (Sitting Height)
Breadth of Nose	.56 (Circumf. of Thorax)	.41	.21 (Total Length)
Inter-Inner Canthus	.46 (Bimalar Diameter)	.34	.21 (Length of Ear)
Length of Ear	.50 (Breadth of Ear)	.34	.20 (Sitting Height)
Breadth of Ear	.50 (Length of Ear)	.35	.23 (Total Length)
Biacromial Diameter	.72 (Circumf. of Thorax)	.51	.37 (Ht. of Lower Jaw)
Bi-Iliac Diameter	.73 (Circumf. of Thorax)	.44	.19 (Ht. of Lower Jaw)
Circumference of Thorax	.73 (Bi-Iliac Diameter)	.54	.37 (Ht. of Lower Jaw)
Length of Palm	.53 (Weight)	.42	.25 (Ht. of Lower Jaw)
Breadth of Palm	.61 (Circumf. of Thorax)	.46	.30 (Ht. of Lower Jaw)
Length of Middle Finger	.67 (Bi-Iliac Diameter)	.48	.27 (Sitting Height)
Leg Length	.61 (Total Length)	.44	.26 (Length of Ear)
Weight	.70 (Sitting Height)	.49	.23 (Height of Nose)

The lowest correlation is also given, and the paired variable named. Finally, the value of the average correlation is presented. These tabulations indicate the general tendency of the variables toward high or low agreement relative to one another, and in addition show the special cases of high and low correlation.

The highest correlations are those between variables which are obviously composites, and even these correlations are not extremely high. Among the highest correlations are those between total length and sitting height (.78 for females and .69 for males). This is not surprising because the one measure is included in the other. Considering the spurious nature of the agreements involved, it is surprising that the correlation is not higher. The results suggest that the two segments included in total height must be very largely independent. This is in

fact the case. The correlation between sitting height and leg length is .57 for males and .58 for females. This very modest agreement indicates a relatively great amount of independence of variation of the two sets of measures.

Table 2

Highest, Average, and Lowest Interrelation Values, for Each of 18 Variables, From Bakwin and Bakwin, Table 7. Data from 609 Female New-Born Babies.

Variable	Highest Correlation	Av. r	Lowest Correlation
Total Length	.78 (Sitting Height)	.46	.18 (Height of Nose)
Sitting Height	.78 (Total Length)	.42	.16 (Height of Nose)
Bimalar Diameter of Face	.61 (Circumf. of Thorax)	.44	.27 (Height of Nose)
Upper Facial Height	.54 (Height of Nose)	.33	.22 (Sitting Height)
Height of Lower Jaw	.32 (Total Length)	.25	.11 (Bi-Iliac Diameter)
Height of Nose	.54 (Upper Facial Height)	.33	.16 (Sitting Height)
Breadth of Nose	.54 (Circumf. of Thorax)	.39	.20 (Ht. of Lower Jaw)
Inter-Inner Canthus	.47 (Bimalar Diameter)	.35	.26 (Upper Facial Ht.)
Length of Ear	.48 (Circumf. of Thorax)	.37	.20 (Ht. of Lower Jaw)
Breadth of Ear	.47 (Length of Ear)	.34	.21 (Ht. of Lower Jaw)
Biacromial Diameter	.69 (Circumf. of Thorax)	.47	.22 (Ht. of Lower Jaw)
Bi-Iliac Diameter	.66 (Circumf. of Thorax)	.41	.11 (Ht. of Lower Jaw)
Circumference of Thorax	.69 (Biacromial Diameter)	.54	.28 (Ht. of Lower Jaw)
Length of Palm	.53 (Weight)	.40	.23 (Ht. of Lower Jaw)
Breadth of Palm	.65 (Circumf. of Thorax)	.46	.26 (Ht. of Lower Jaw)
Length of Middle Finger	.64 (Bi-Iliac Diameter)	.44	.24 (Ht. of Lower Jaw)
Leg Length	.69 (Total Length)	.43	.26 (Breadth of Nose)
Weight	.72 (Total Length)	.47	.22 (Height of Nose)

In the case of males, the highest correlation, as shown in Table 1, is that of .73 between bi-iliac diameter and circumference of thorax. This correlation does not necessarily involve spurious elements. In the case of females, the correlation of bi-iliac diameter and circumference of thorax is .66. Excluding the obviously spurious agreement between height and sitting height, the highest correlation for females is that between weight and total length (r is .72 for females and .66 for males).

The agreement of results from males and females indicates that the trends in the correlation tables are in general consistent. There are a few exceptions, as one might expect. For example, weight in males is a closer function of sitting height (r is .70) than of total length (r is .66), while in females weight is more closely correlated with total length (r is .72) than with sitting height (r is .68).

The lowest correlations for each variable would be hard to predict a priori, but their consistency is shown by the fact that they are much the same in the two tables. Inspection of our Tables 1 and 2 indicates that these trends cannot be accounted for in terms of unreliability of measurement alone, nor in terms of relative isolation of the body parts compared. A relative small detail sometimes correlates significantly higher with a large body measure than the latter correlates with some other large body measures. For example, length of middle finger correlates highest with bi-iliac diameter (r is .67 for males and .64 for females), and this correlation is higher than that between total length and bi-iliac diameter (r is .25 for males and .29 for females). Furthermore, it is interesting that the length of middle finger correlates with bi-iliac diameter more than the latter correlates with biacromial diameter (r is .60 for males and .52 for females).

MULTIPLE FACTOR ANALYSIS

Thurstone's simplified multiple factor method has been applied to these data, in order to determine how many independent general factors must be postulated to account for the measured variance, and in order to ascertain so far as possible the nature of the factors so extracted. The assumptions underlying these techniques, and the procedures employed, have been discussed at length elsewhere (3,4). The further procedures indicated in a later and more comprehensive formulation of factor theory (5) have not as yet been applied. The preliminary facts about communality, specificity, and number of factors seem to be clearly shown by the simplified technique here used, and it is in these basic problems that our present interest lies.

It frequently happens that measurements originally selected for study are more or less in agreement; hence each may be regarded as measuring the same thing to a greater or lesser extent. Over and above this general agreement, there may be evidence of special tendencies of groups of variables to have something in common; furthermore, other groups may seem to disagree. Prevalent trends of analysis indicate an almost universal tendency of investigators to seek accurate description of the agreements and disagreements existing among their measurements. All this indicates the desirability of regarding the results of measurement, for purposes of argument, in terms of variables alternative to the original variables. Factor analysis is a technique which assists one in this undertaking. Simplification in thought is secured by dealing with independent variables chosen to replace the complexly-overlapping variables. Economy is secured by making the first factor account for as much as possible, and by making the subsequent factors in turn account for as much of the remaining measurement as possible. The methods of factor analysis are based on straightforward mathematical logic. They offer no substitutes for common sense and insight, but they do provide an impartial quantitative evaluation of results, which is often very stimulating. Let us now consider the results of application of these methods to data based upon measurements of 18 different bodily dimensions.

Table 3 is a much condensed presentation of the quantitative results of multiple factor analysis. Two separate analyses were carried out, dealing with the data on males and the data on females separately; for convenience in comparison, these results have been assembled in the one table. For each of four factors, the factor loadings are given for each variable. The sums of squares of the factor loadings are presented to indicate the portion of the variance of each variable measured by the four broad factors. The highest correlation coefficient for each variable is also given, as a measure which should lie between the communality and the reliability (generally speaking, a first approximation to the communality. The communality is that portion of the variance not specific to the single variable. Therefore it affects the correlations of the given variable with at least some of the other variables.

The first factor reflects the mild but general agreement of all the external dimensions. The first factor loadings are all positive, and comparatively heavy for each of the 18 variables. There is, however, a range of from .85 to .39. It is apparent that the relatively lighter loadings are those of the smaller measurements, which might be less reliable. It should be further noted however, that the less heavily-represented variables are those, such as details of face and head, which according to common sense may easily vary independently of gross bodily measurements. As indicated by Factor 1, however, not one of these 18 measures is entirely uncorrelated with any one of the others.

A second observation concerning this first factor is that (when the measures are paired as much as possible) the thickness measures are more heavily weighted than are the length measures. An exception is found in the ear measurements. It is very interesting that a measure such as bimalar diameter should be weighted as heavily as sitting height! It means that bimalar diameter tends to corre-

late with all the other measures, apart from special linkages, slightly more than does sitting height. And the fact that circumference of thorax is more heavily weighted than total length is certainly surprising. This can hardly be explained as due to unreliability of measurements. For some reason, various size measurements of the babies can better be predicted from circumference of thorax than from total length, or any other length measure.

Table 3

Results of a Multiple Factor Analysis of Intercorrelations of the External Dimensions of 608 Male New-Born Babies, Compared with Results of a Similar Analysis of Data from 609 Female New-Born Babies.

	Factor One		Factor Two		Factor Three		Factor Four		Sum of		Highest	
	Loadings	Boys	Loadings	Girls	Loadings	Boys	Loadings	Girls	Squares	Boys	Coefficient	Girls
Total Length	.60	.73	.54	.52	-.07	.05	.06	-.09	.67	.82	.69	.78
Sitting Height	.59	.65	.58	.51	.01	.03	.08	-.02	.70	.69	.70	.78
Bimalar Diameter	.72	.68	-.06	-.12	.27	.25	.09	.24	.60	.60	.65	.61
Upper Facial Height	.58	.52	-.10	-.16	-.39	-.42	-.11	-.11	.52	.48	.54	.54
Height of Lower Jaw	.46	.39	-.01	.08	-.16	-.13	.14	.11	.26	.19	.37	.32
Height of Nose	.56	.52	-.31	-.37	-.20	-.27	-.36	-.42	.57	.66	.54	.54
Breadth of Nose	.63	.61	-.29	-.37	.15	.09	-.10	.03	.52	.52	.56	.54
Inter-Inner Canthus	.52	.55	.04	.04	.13	.00	-.04	.12	.29	.32	.46	.47
Length of Ear	.53	.58	-.24	-.10	-.25	-.17	.28	.11	.48	.39	.50	.48
Breadth of Ear	.54	.53	-.19	-.11	-.25	-.26	.20	.18	.43	.40	.50	.47
Biacromial Diameter	.79	.74	-.06	-.00	.13	.10	.09	.05	.66	.58	.72	.69
Bi-iliac Diameter	.68	.64	-.30	-.42	.33	.36	-.06	-.15	.66	.74	.73	.66
Circumference of Thorax	.84	.85	-.09	-.06	.24	.22	.11	-.01	.78	.77	.73	.69
Length of Palm	.65	.63	.14	.16	-.13	-.09	-.12	.01	.47	.43	.53	.53
Breadth of Palm	.72	.72	-.11	-.02	.07	.11	-.11	.02	.54	.54	.61	.65
Length of Middle Finger	.75	.69	-.26	-.28	.05	.10	-.17	-.14	.66	.58	.67	.64
Leg Length	.68	.67	.34	.34	-.07	-.06	-.04	-.18	.58	.60	.61	.69
Weight	.76	.74	.40	.36	.16	.13	.15	.03	.78	.70	.70	.72
Av. (Disregarding Sign)	.64	.64	.23	.22	.17	.16	.13	.11	.56	.55	.60	.60

The ranking of the 18 measurements according to the loadings of Factor 1 are similar for males and females. The two sets of ranks correlate to the extent of .88. Thus good agreement has been found when the results from two totally different samplings are compared.

Factor 1 is apparently a measure of size in general. It weights the thickness measures more heavily than the length measures, and the large bodily features more than the smaller details. Length measurements, thickness measurements, and other details of size have something in common. But none of these groupings is completely explainable in terms of a single factor. In fact, the major part of the variance is left unexplained. We must turn to subsequent factors for evidence concerning further components of the particular variables.

Table 4 is given in order to present in brief and convenient form the variables heavily represented in the later factors. The presentation is arbitrary but convenient, and additional details can be seen by consulting Table 3. Here the presentation of extreme loadings (positive and negative) furnishes a simple indication of the nature of the successive factors. They are of course successively less important, as shown by the small size of the loadings for the later-extracted factors.

It is not necessarily to be expected that the later factors will reveal clear-cut pictures of familiar trends. Perhaps we are ignorant of some of the trends in the data, and the nature of these factors may amount to a discovery of new facts. The original data all indicate that gross bodily features and details of head measurements do not agree perfectly, and that length and thickness measurements do not agree perfectly. Hence removal of Factor I, which reflects the agreements, leaves the relevant disagreements in relief. It appears that Factor II is a composite of contrast effects. The contrast seems to involve length measurements and weight positively weighted, and the measurements of face, hands, and pelvis negatively weighted.

Table 4

An Abbreviated Indication of the Variables Heavily Represented in the Several Factors. The Factor Loadings are Given for Males (M) and for Females (F) Separately.

Positive Loadings			Negative Loadings		
FACTOR I					
All variables are positively loaded, in both sets of data					
FACTOR II					
	M	F		M	F
Total Length	.54	.52	Height of Nose	-.31	-.37
Sitting Height	.58	.51	Breadth of Nose	-.29	-.37
Weight	.40	.36	Bi-Iliac Diameter	-.30	-.42
Leg Length	.34	.34	Length of Middle Finger	-.26	-.28
FACTOR III					
	M	F		M	F
Bi-Iliac Diameter	.33	.36	Upper Facial Height	-.39	-.42
Bimalar Diameter	.27	.25	Breadth of Ear	-.25	-.26
Circumf. of Thorax	.24	.22	Length of Ear	-.25	-.17
Weight	.16	.13	Height of Nose	-.20	-.27
FACTOR IV					
	M	F		M	F
Length of Ear	.28	.11	Height of Nose	-.36	-.42
Breadth of Ear	.20	.18	Length of Middle Finger	-.17	-.14
Bimalar Diameter	.09	.24	Upper Facial Height	-.11	-.11

We may reasonably assume that weight is a function of height to the extent indicated by the agreement in this factor, and second that features of face and extremities have some unknown bond with pelvic measurements. It would be very interesting to know what causal factor may underlie this linkage of details of face, extremities, and pelvic measurements. The factor analysis, of course, merely indicates the linkage and does not explain it.

The order of the second factor loadings for magnitude, from highest positive to highest negative, is not random. The rankings of second factor loadings for males and females are in very good agreement, as shown by a rank-difference correlation of .95. These consistencies suggest that the findings here obtained

from two independent sets of data merit some consideration, even if the conclusions must be regarded as more or less speculative at present.

Factor III contrasts some thickness or width measurements and their correlates with some details of facial measurements, with emphasis upon longitudinal features. Apparently, it is a contrast of height and width measurements, which does not extend to gross body length measures. There is excellent agreement of the findings from males and from females, as shown by a rank-difference correlation of .94 between factor loadings from the two sets of data.

The fourth factor is similarly of contrast nature, but it is less consistent. Remembering that the contribution to variance is proportional to the squares of factor loadings, we see from Table 3 that the fourth factor is a relatively unimportant component of most of the variables. The fourth factor loadings for males and females have a rank-difference correlation of .64, which shows a marked drop in consistency relative to the preceding factors. For practical purposes, this fourth factor may be considered almost negligible. We do not consider it entirely negligible, but the technique is such that successively-extracted factors become progressively less important, and this fourth factor makes a relatively slight contribution to most of the variables.

COMPLEXITY OF MEASURES

The data of Table 3 suggest that some of the measured variables are more complex than others, not merely in being composites, but in having more numerous independently-behaving components. For example, inter-inner canthus has heavy loadings for Factor I, but not for any other factors; leg length has heavy loadings for Factors I and II; biacromial diameter has extremely heavy loadings for Factor I, and no other heavy loadings; bi-iliac diameter has rather heavy loadings for the first three factors. These findings are approximately the same for the males and the females. They show that some of the measured variables have special tendencies to correlate with particular sets of the variables, more than with others. Some of the variables correlate with all the other variables to an extent which is relatively uniform.

DISCUSSION

Since the data analyzed in this report are based entirely upon measurements of babies, it is necessary to keep in mind the fact that the results may not apply to similar data from older subjects. At later ages, body proportions will have changed, and the interrelationships between dimensions may exhibit very different patterns. For this reason, it seems desirable to make comparative studies of tables of inter-correlations obtained at successive stages of growth. The present paper is devoted entirely to consideration of data from new-borns, and for this purpose the data seem appropriate because of the large populations and the extensive array of measurements taken.

In studying the two tables of intercorrelations of babies' dimensions, multiple factor analysis has been used as an aid in securing a more exact and illuminating summary of the existing tendencies toward agreement and disagreement. It must be emphasized here that we make no pretense of discovering causal relations. The analysis is structural, not causal, in the sense that dynamic factors may not be isolated. The analysis should be useful in the search for causal relations, only to the extent that the correlations themselves reflect the underlying dynamics.

The extraction of the first factor gives a more adequate idea of the extent of general agreement among the various dimensions, in relation to the amount of independence, and the various linkages which do not extend to all the variables. The second, third, and fourth factors indicate the presence and nature of correlation tendencies which remain after the general size factor is removed. The number of factors needed to explain the correlations is an indication of the

complexity of the determiners of bodily dimensions. The sum of squares of factor loadings is a good approximation to the communality, or that part of the variance which each variable has in common with at least one of the other variables.

The sum of squares of factor loadings indicates for each variable what proportion of the variance is explainable in terms of the factors which have been extracted. This is rather illuminating, for it indicates the extent to which the variable may be predicted from knowledge of the other variables. The remainder of the variance includes chance factors, as well as specific factors. The factors specific to the single variable can be determined only when other correlated variables are included in the program of measurement. When we speak of the communality as an indication of the completeness of determination of the variable, we shall mean the extent to which its variance can be attributed to factors which it has in common with other measurements included in the present analysis.

When the variables are arranged in order of completeness of determination by the four factors extracted, the results are similar for boys and girls, with a few exceptions. The most completely-determined variable is circumference of thorax; the communality is only .78. The least completely-determined variable is height of lower jaw; here the communality is .26 for boys and .19 for girls. These values must be very low in relation to reliability, hence it may be inferred that there is much specificity. This fact is interesting, because the lowest communality values are for facial measures, of which there are eight in the group of variables studied. Scrutiny of the detailed results shows that the trends cannot be entirely explained in terms of variation in the reliability of different measures; nevertheless, complete explanation of those trends must take account of the variations in reliability. Unfortunately, although Bakwin and Bakwin do furnish indications of accuracy of measurements, they do not present the needed correlation coefficients, nor do they present data which permit calculation of the coefficients, nor do they present data which permit calculation of the coefficients of reliability. This fact constitutes the major limitation in the use of their data in the present analysis.

The sex differences deserve special mention. The total length of babies is much better determined (communality .82) for girls than for boys (communality .67). This means that total length of girls varies less independently of other bodily dimensions. Also, bi-iliac diameter is determined equally well with biacromial diameter of boys, but in girls the bi-iliac diameter is far better determined (communality .74) than is biacromial diameter (communality .56). To sum up these facts, total length has more independent variation in boys than in girls, and likewise width of hips has more independent variation in males than in females.

SUMMARY, CONCLUSIONS, AND SUGGESTIONS

A detailed study has been made of the intercorrelations between 18 external dimensions of new-born babies. The measures included gross bodily dimensions, face measurements, and measures of details of extremities. The correlations used were those published by Bakwin and Bakwin (2), consisting of two large tables, one based upon data from 609 girls and the other from 608 boys. Inspection of the original correlations, and multiple factor analysis, have led to the following observations:

1. All measurements of different parts of the babies' bodies show some positive correlation, but no two parts are highly intercorrelated.
2. No single factor can account for a major part of the measured variance, when widely different parts of human bodies are measured. If the measures may be assumed to be fairly reliable, specific factors are more important than general factors.

3. The results here are much different from those secured when the same method of analysis is applied to mental test data. The anthropometric data show greater complexity, lesser importance of each component, greater number of components, and greater specificity.

4. The intercorrelations to be expected between different bodily dimensions cannot be predicted logically, but they behave systematically. The data indicate the presence of linkages which could hardly be inferred from elementary knowledge of the measurement procedure.

5. The first factor apparently reflects the general agreement of all the measured variables, and the later factors indicate the presence of and nature of linkages which could not be explained by a single component. The consistency of the first three factors is indicated by the high coefficients of agreement of data from males and from females.

6. Length of body and width of hips vary independently of other bodily dimensions to a greater extent in males than in females.

7. There is much independence of measurements of lengths or widths of different segments. The independence is greater for length measurements.

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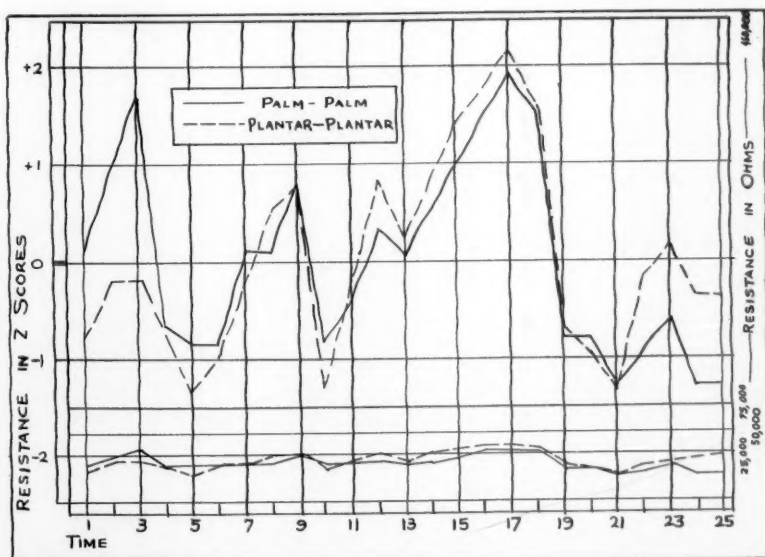
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A NOTE ON Z-SCORES AS A TECHNIQUE FOR TREATING SERIAL
MEASUREMENTS OF ELECTRICAL SKIN RESISTANCE

MARION A. WENGER and ORVIS C. IRWIN¹

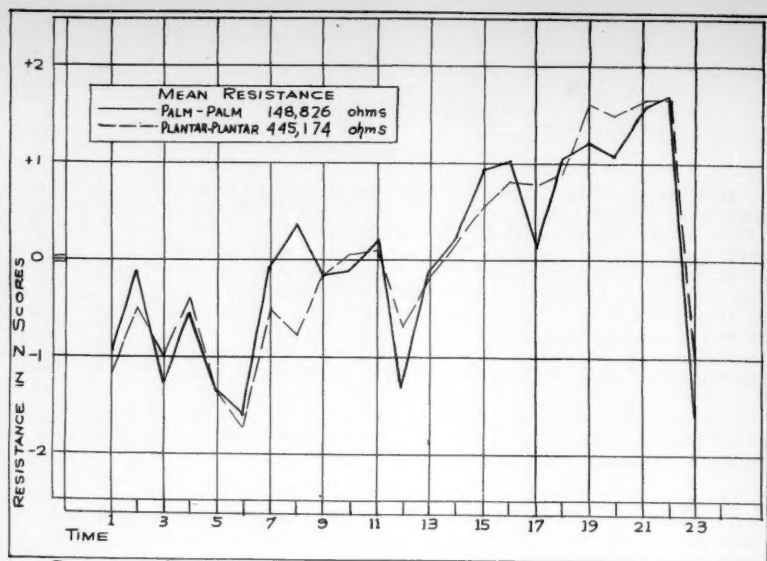
During the course of an investigation (2) involving serial measurements of apparent electrical skin resistance in human infants and adults, it became evident that subjects whose general level of resistance was low maintained a nearly constant level of resistance throughout a two-hour observation period. On the other hand when the resistance was high large fluctuations were noted. When the means in ohms of series of measures taken at five-minute intervals were correlated with the standard deviations of the deflections, the coefficient of correlation was .83 for infants and adults, and .94 for adults only. It follows that series of measures from differing levels may not be compared unless the data have been rendered comparable. Of the several techniques for comparing data which show a constant relationship, standard measures or Z-scores, as Kelley (1) has termed them, have been chosen because the mean and standard deviation from which they are derived are the most reliable measures of central tendency and variability.

Two applications of this procedure will illustrate its usefulness and at the same time justify it. Lower Figure 1 shows palm-palm and plantar-plantar resistance from one infant plotted in ohms on an abscissa adequate to receive the range of skin resistance values of the average infant subject. Although large fluctuations have been found to occur with changing muscular processes (2), it is apparent that the curve is practically a straight line. When, however, the data are converted into Z-scores their relative fluctuations are revealed in their true comparability to other series of measures at higher resistance levels.



SUBJECT #15 (dc)

Figure 1 Palm-Palm and plantar-plantar resistance of one infant plotted in ohms



SUBJECT IV_b (dc.)

SMALL ELECTRODES ON PLANTAR SURFACES

Figure 2 Curve in Z-scores of widely disparate palm-palm and plantar-plantar measurements from one adult subject

Figure 2 shows the curves in Z-scores of widely disparate palm-palm and plantar-plantar measurements from one adult subject. It will be seen that the mean plantar resistance is approximately three times that of the palmar resistance. In this subject this difference is partially the result of the smaller electrodes used on the plantar surfaces. Had these values been plotted in ohms, large fluctuations would have been apparent in the plantar curve while the palmar fluctuations would have been much smaller. Their striking correspondence when plotted in Z-scores, corroborated by many similar examples in the forementioned investigation, is evidence of the corresponding physiological changes in plantar and palmar skin areas. The few deviations noted are explained by the fact that an interval of 15 to 30 seconds elapsed between palmar and plantar measurements.

In the light of these findings it is clear that serial measurements of skin resistance cannot be directly compared unless they fluctuate about the same mean. It is also clear that Z-scores furnish an adequate technique for comparing serial measurements fluctuating about different means.

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A BIBLIOGRAPHY OF BABY BIOGRAPHIES¹

WAYNE DENNIS

Although it is customary to consider that the biographical period in child psychology belongs to the past and to hold that it has contributed relatively little to this field of knowledge, nevertheless many of the recent studies of child behavior have used baby biographies for background material. The writer is among those who have found this biographical material very useful. In utilizing the data of these reports, he found it necessary to compile a list of the published biographies. Although the biographical accounts are often referred to, no writer has made reference to more than a small part of the total number. To the writer's knowledge there is no bibliography of baby biographies. In view of the probable usefulness of such a list he presents one herewith.

The bibliography is reasonably complete, although it is inevitable that omissions will be found. The writer will greatly appreciate having omissions called to his attention.

The most useful sources of titles have been the Psychological Index, the Psychological Abstracts, the catalogs of the New York Public Library and of the Library of the U. S. Office of Education, and the annual bibliographies of child study which appeared in the Pedagogical Seminary, although scores of other bibliographies have been consulted.

It was not easy to decide what should be included as a baby biography. There is a host of accounts of language development in individual children, but several excellent bibliographies of these contributions are already available. To prevent a duplication of language bibliographies, it was decided in the present instance to include only accounts which deal with two or more phases of the development in the same infant. However, in any case in which the different phases of development of the same child are taken up in separate articles the entire group of articles has been included.

A more difficult question arose concerning the inclusion or omission of many general treatises on child psychology which are based in the main on records of the children of the respective authors. In general these works have been omitted on the ground that they are not primarily baby biographies. To list every book that contains some biographical material on early infancy would, it was felt, be impossible of completion; and even if carried out in part it would destroy the usefulness of the bibliography by filling it with a great quantity of irrelevant material.

Biographies have not been included unless they contain material on the first three years of life. While interesting and valuable material on the later years exists, it was decided to include only "baby" biographies.

The greatest labor has been incurred in discarding works whose titles indicated that they might be biographical contributions but which proved to be only generalized accounts based upon the works of other authors or upon an unascertained amount of general observation.

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A GRAPHIC AGE CONVERSION SCALE

DOROTHEA MCCARTHY¹

In the literature of child development one encounters a variety of practice in the units employed for reporting age. While most people are accustomed to thinking of a child's age in terms of months for the first year or two, and in terms of years thereafter, many scientific investigators have, for the sake of accuracy, employed the smaller units of weeks or even days. When, as is often the case, these small-unit age designations are continued to higher age levels, the numbers involved become quite large and the age concept becomes rather meaningless to the usual reader who is unaccustomed to thinking in such terms.

If one wishes to compare the results from various laboratories one finds, for example, that the work of C. Bühler is expressed in years, months and days, that of Gesell in months, that of Shirley in weeks and that of McGraw in days. Reviewers in summarizing the literature usually carry over these different age designations from the original studies without making any conversion into comparable terms, so that several age units may be found in the same paragraph. The reader who is familiar with the literature will recognize that the following quotation is not an extreme instance; "Some experiments appear to indicate that thumb opposition occurs at about the 12th week while others place it at 6 months. Shinn notices the tendency for the thumb to reverse during the 9th week, and Jones records opposition in 50% of her cases at 148 days, and in 100% of her cases at 266 days" (2). In a recent volume (1) reviewing the literature there is a ten-page section on walking in which 16 studies are summarized. These ten pages contain 99 references to age, 33 of which are in terms of weeks, 29 in months, 28 in days, 4 in months of certain years, 4 in years and one in months and days.

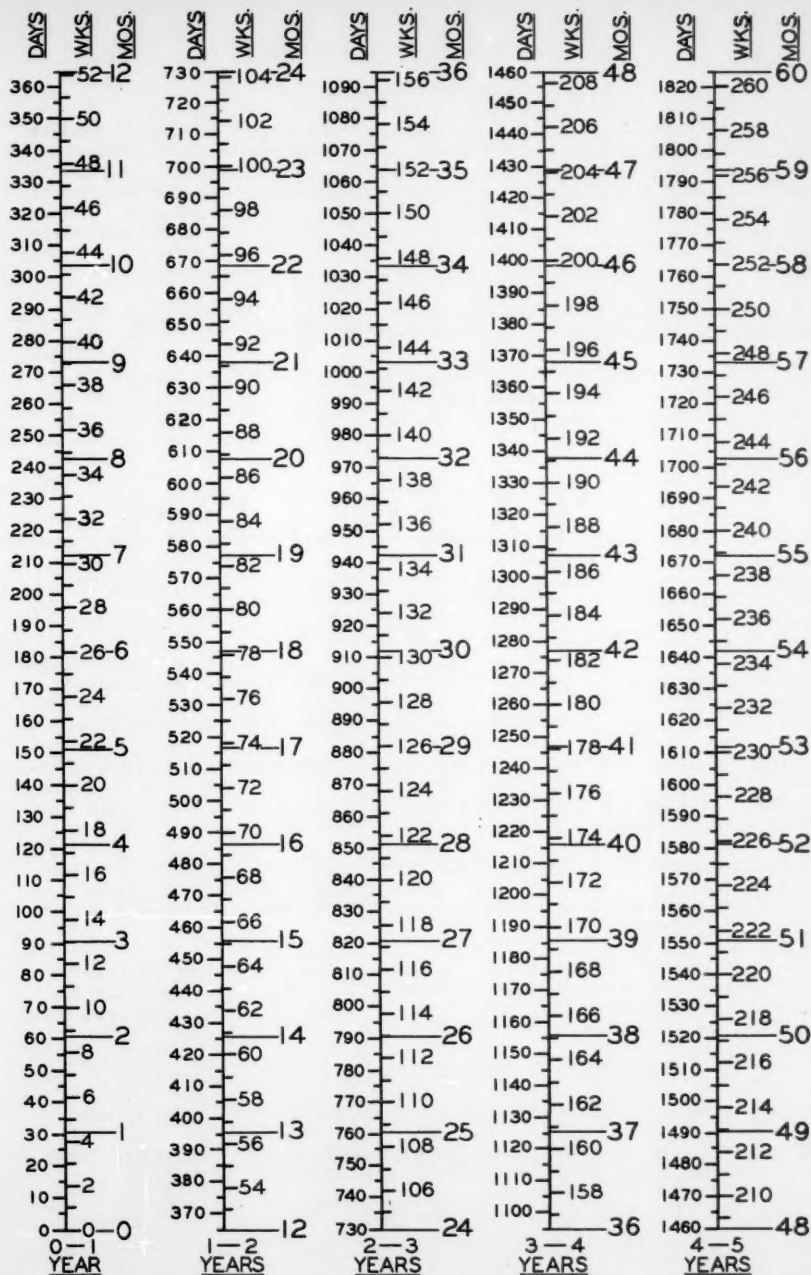
In reading such passages as the two just cited, the reader is forced to make many mental divisions or multiplications in order to determine the amount of agreement or disagreement among the various authors cited on the points at issue. He thus becomes chiefly concerned with the mental arithmetic involved, which, though simple, is sufficient to distract his attention from the full significance of the developmental sequences under discussion. It is indeed unfortunate that this unnecessary confusion exists, and it is to be hoped that some agreement making for greater uniformity in the designation of age in scientific writings can be reached. Until such uniformity is achieved, it is hoped that the accompanying line-graph may serve as a useful tool for the ready conversion of ages expressed in any one system of units to any other. It covers the age range from birth through five years with one vertical line representing each year. Days are indicated on the scales to the left, and weeks and months to the right of the vertical scales.

In the construction of the graph each 365-day year was divided into twelve equal months of 30.42 days, and into 52.14 weeks of seven days. Although the finest units marked on the scale are five-day units, the scale can be read quite easily to about the nearest day.

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¹
From Fordham University



COMMITTEE FOR THE STUDY OF SUICIDE

An organization to be known as the Committee for the Study of Suicide, Inc. was incorporated last December under the laws of the State of New York and began its activities early in January. The Committee may in time increase its present membership of ten to a total number of twenty. The Board of Directors and the officers of the new corporation are:

Dr. Gerald R. Jameison, President
Mr. Marshall Field, Vice-President
Dr. Henry Alsop Riley, Treasurer
Dr. Gregory Zilboorg, Secretary
and Director of Research

Miss Elisabeth G. Brockett
Dr. Franklin G. Ebaugh
Dr. Herman Nunberg
Dr. Dudley D. Shoenfeld
Dr. Bettina Warburg

The Committee plans to undertake a comprehensive study of suicide as a social and psychological phenomenon. To achieve this the following general outline was adopted.

1. Intramural studies of individuals inclined to suicide in selected hospitals for mental diseases. These will embrace constitutional, neurological, psychiatric and psychoanalytic investigations of the phenomenon with special reference to therapy and prevention. This part of the study will include the investigation of suicidal trends or ideas of death emerging in organic deliria.

2. Extramural studies of ambulatory cases afflicted with suicidal trends or with obsessional wishes for their own death. These studies will be primarily therapeutic in nature, the cases to be treated in especially selected out patient clinics and by qualified psychiatrists and psychoanalysts. Regular "control seminars" to follow and to supervise the course of the cases under treatment will be held under the guidance of the Committee. The medical and neurological status of all cases will be a prerequisite of each case record.

3. Social studies of suicide will be undertaken along the following general lines. Various attempts at suicide will be followed up by experienced psychiatric social workers; all cases will be studied from the standpoint of social background and history and those who failed in their attempts or have recovered from injuries following a partially successful attempt (prolonged unconsciousness or physical illness) will be urged to submit to psychiatric and psychoanalytic treatment in the hands of the intra- or extra mural therapeutic agencies which will be available to the Committee.

4. Ethnological studies, i.e. comprehensive investigation of suicide among primitive races, will be one of the first concerns of the Committee, for suicide is a rather frequent occurrence among many primitive races still extant and when studied may throw some light on suicide as a psycho-biological phenomenon. It is planned that an expedition headed by a psychiatrically schooled anthropologist, a psychiatrist and a psychoanalyst should work for a time in a region such as the Melanesian Islands or the Gulf of Papua, and in the interior of the Mexican North West as well as among some of the North American Indian tribes. Further details of this plan will be elaborated.

5. Historical studies of suicide will be pursued systematically under the auspices of the Committee, so as to make available a scientific history of the phenomenon as a social and medico-psychological problem.

The Committee was organized under the guidance of its first chairman, the late Dr. Mortimer Williams Raynor, Medical Director of Bloomingdale Hospital, who died on October 5th, 1935.

Dr. Henry E. Sigerist, Professor of the History of Medicine at Johns Hopkins University, and Dr. Edward Sapir, Professor of Anthropology at Yale University, are consultant members of the Committee. They will advise and guide in that part of the work which touches their respective fields. The Executive Offices of the Committee are located at Room 1404, the Medical Arts Center, 57 West 57th Street, New York City, and will be in charge of an executive assistant.

